

# CONSTRUCTION

## METHODS AND EQUIPMENT

March 1950



A McGRAW-HILL PUBLICATION

# pushing the SWIFT COLUMBIA aside

...Electrically

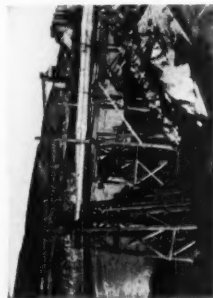
**McNary Dam Contractors depend on General Electric equipment to make a success of "the toughest river diversion ever undertaken."**

The 1953 deadline for initial generation of power at the McNary Dam project makes it an unprecedented "race against high waters." Making this deadline is a necessary step towards the alleviation of the acute power shortage in the Northwest. Because of this, the whole construction world is carefully watching the work that leads to the beginning of closure sections operations next fall. To meet this tough schedule, contractors working under contracts with the Corps of Engineers are relying on *electric drives* supplied and co-ordinated by General Electric.

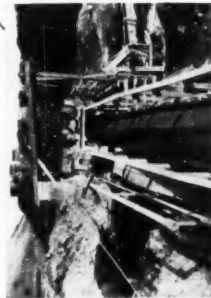
Construction equipment, driven by G-E motors and control, and supplied from G-E distribution systems, will help meet your schedules with a maximum of safety, economy, and ease of maintenance. *Apparatus Dept., General Electric Co., Schenectady 5, N. Y.*



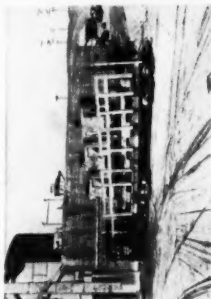
**1.** This G-E powered shovel handles 5 cubic yards of rock excavation with every bite. Operating from a 2400-volt system, it responds instantly to the operator's touch; is easy to maintain despite rough usage.



**5.** Deep-well pumps keep leakage from flooding the construction area. The same large Tri-Clad vertical motors driving these pumps have done yeoman service for the contractors on many previous jobs.



**2.** Five classes of aggregate are moved from stockpiles to batch plant on belt conveyors like this. G-E motors drive and G-E controls protect these crucial links in the concreting operations at McNary.



**3.** Four 25-ton G-E industrial locomotives (dinkies) move concrete—three 4-yard buckets at a time—from batch plant along a 675-foot wooden trestle at just the speed demanded by the schedule.



**4.** Two giant electrified revolving gantries remove buckets from railroad dinkies and place concrete in the world's highest single-lift navigation lock. Both cranes are driven by General Electric hoisting systems.

*Ask him Today!*

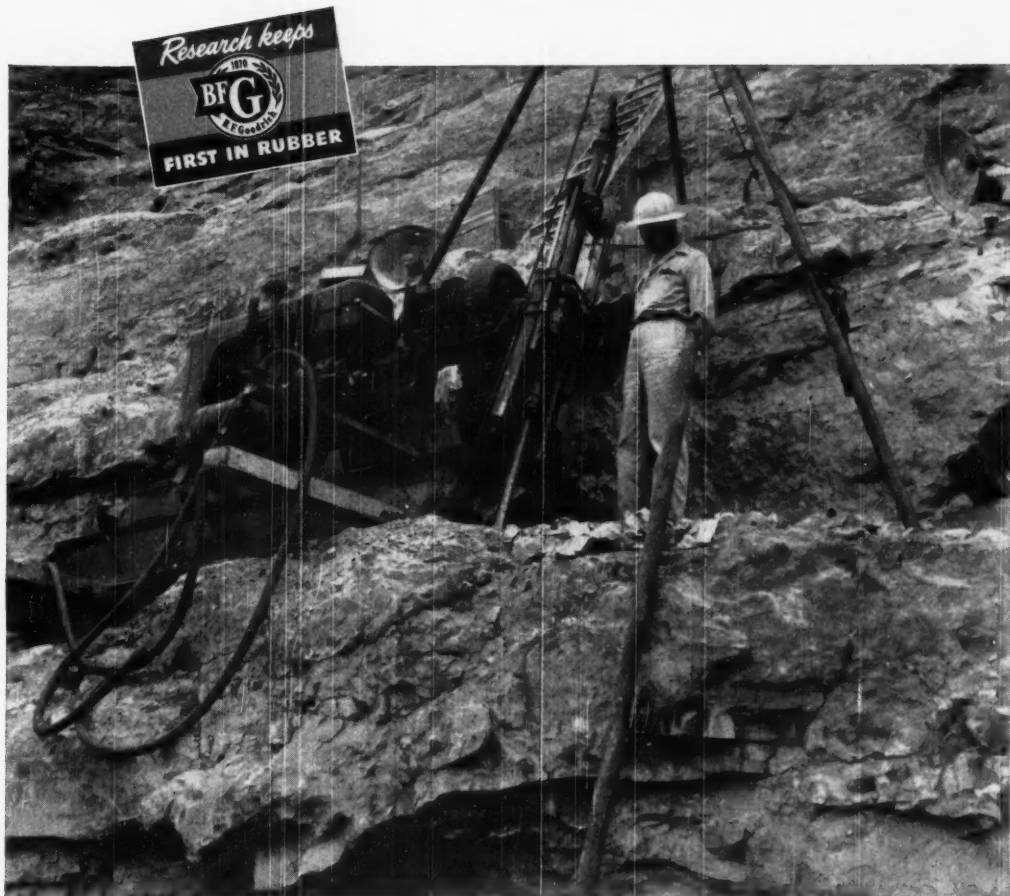
Whether you buy or build construction equipment, your G-E representative can show you how to do a better job—at lower cost—by complete electrification. Write him now, and he'll call on you at your convenience.



**GENERAL ELECTRIC**

664-9





## Oil won't rot it, rock won't tear it B. F. Goodrich air hose lasts for years

**T**HAT'S B. F. Goodrich Type 50 air hose at left, used exclusively on this big construction job at Bull Shoals Dam in Arkansas. Here's why—

**Oil-resisting**—Oil destroys ordinary rubber; particles of the tube come loose, choke up tube and drill. B. F. Goodrich Type 50 air hose has an oil-resisting tube that won't break into loose, gummy particles. On jobs where, with hose of ordinary rubber, the hose had to be replaced every few weeks to save tools, B. F. Goodrich air hose lasted for years. The cover of Type 50 is oil-resisting too. Workers with oily hands or gloves can handle it, use it near oily machines and surfaces.

**Tear-resisting**—On a quarry job

like this, hose is always in danger of costly tears, breaks, snags. B. F. Goodrich engineers developed a special abrasion-resisting cover for air hose. Scraping over rock, rough floors, cinders, roads won't tear it. Won't check or crack from constant sunlight.

**Recommended Services**—B. F. Goodrich Type 50 air hose is recommended for shop tools, tie tamping, light and heavy portable compressors, air hoists, ore mining and quarry service.

B. F. Goodrich makes an air hose for every purpose, from small shop tool to big construction machinery... for small oil and air lines, heavy duty service in mines and quarries, for in-

side shops where oily conditions would rot ordinary hose, outdoor compressor service, air drills and pneumatic tools.

Your local BFG distributor has all the details and prices on these and other B. F. Goodrich air hose, many with features found only in hose made by B. F. Goodrich. Give him a call, or write *The B. F. Goodrich Company, Industrial and General Products Division, Akron, Ohio.*

*Air Hose*  
BY  
**B.F. Goodrich**



Heiliner with 18-cu. yd. bottom-dump wagon

*These Exclusive Heiliner Features Save You Money*

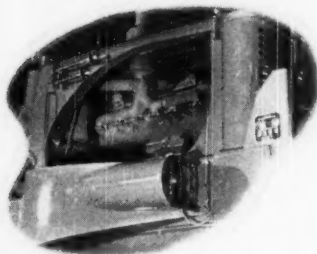


Heiliner with 18-cu. yd. scraper

HEILINERS • SCRAPERS • DOZERS (Hydraulic- and Cable-operated) • DUMP BODIES

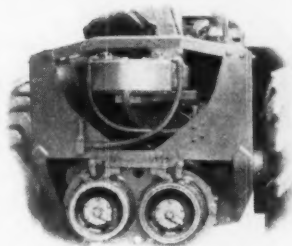
# Heiliners

*move more dirt faster...at less cost*

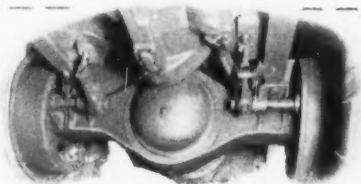


**Full traction**— Sure-footed Heiliner drive-wheels carry 70% of total vehicle weight—make full use of powerful 200-h.p. Cummins Diesel. That's why Heiliners are so much faster in the cut and on the fill.

**Quick dumping**— Heiliner cable power control-unit provides easy, accurate, finger-tip control. Loads are bigger, dumping faster. Cushioned clutch-action prevents jerks and shocks on cables. Large drums run cool, cable lasts longer, costs are lower.



**Easy steering**— Heil's patented Hydro-Steer makes steering safe, positive, effortless—eliminates nosing, snaking, jack-knifing, or over-steering. Your operator can turn the 39-foot Heiliner in a 22-foot radius easily with one hand.



**Rugged axle**— Heiliner's super-axle has an overall gear reduction of 153 to 1. This provides a low-torque drive for maximum power. The full-floating axle shafts and wheel drive-gears are fully accessible upon removal of hub caps. You don't have to pull the wheels or shore up the unit to remove axle. Servicing is quick and easy.

## 4 reasons why they're 1950's best buy

1. 200 h.p. Cummins Diesel gives you an over-drive speed, loaded, of 25 mph and plenty of lugging power for the tough going.
2. Effortless steering reduces operator fatigue, increases safety—for faster haul cycles and lower costs.
3. Exclusive design of Heil power control-unit insures bigger loads and faster dumping. You make more round trips and more money on every trip.
4. Sturdy, unique super-axle construction provides both the torque and the stamina needed for money-making performance on the toughest jobs. Accessibility reduces maintenance down-time and costs. That's why Heiliners move more pay dirt per shift.

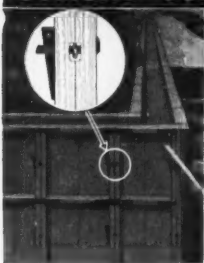
Make more money on your dirt. Put Heiliners on your job right away. Ask your distributor for the full story on Heil's complete line of earthmoving equipment. Or write us today for our latest bulletins.

# THE HEIL CO.

DEPT. 230, 3002 W. MONTANA AVENUE, MILWAUKEE 1, WISCONSIN

Factories: Milwaukee — MINISTON, ILL.  
District Offices: Hillsdale, Washington, D. C., Atlanta, Milwaukee, Detroit, Chicago, Minneapolis,  
Kansas City, Dallas, Los Angeles, Seattle

# SYMONS CONCRETE FORMS



Your  
answer  
to

## low foundation costs

Here's Why!

Symons Concrete forms save you 50 to 75% of the entire labor of forming. You eliminate eleven costly steps in concrete form construction, and the following materials:

- ✓ Nails
- ✓ Lumber for more than one waler
- ✓ Most of the lumber for bracing
- ✓ Loss of lumber caused by the splitting action of nails
- ✓ Spreaders

These forms can be built in your own shop . . . saving you freight . . . or you may purchase the forms complete.

Inset shows head on view of tie.

At left is cross section view of tie.

## SAFETY SHORES and "Ever-Square" COLUMN CLAMPS

...the builders choice



**COLUMN CLAMPS** . . . Have only two units . . . both alike. No loose parts. Simple to put on—only tool required is a hammer. The only clamp known that will positively square up the column. Adjustable.

**SAFETY SHORES** . . . Lighter, stronger, easier to adjust and safer to use. Symons Shores have many exclusive features . . . metal scab, powerful lifting jack, simple and secure tee head and an extension for very high ceilings. Compare the Symons Shores with other shores and you will be convinced of their superiority. Symons Forms, Safety Shores and Column Clamps can be rented with purchase option. Paid rentals apply on purchase price.

**SYMONS CLAMP & MFG. CO.**  
4255 West Diversey Ave., Chicago 39, Ill.

Please send information regarding

☐ Forms ☐ Column Clamps ☐ Shores

Name

Address

City  Zone  State

Volume 32  
Number 3

# CONSTRUCTION METHODS AND EQUIPMENT

ESTABLISHED  
1919

MARCH 1950

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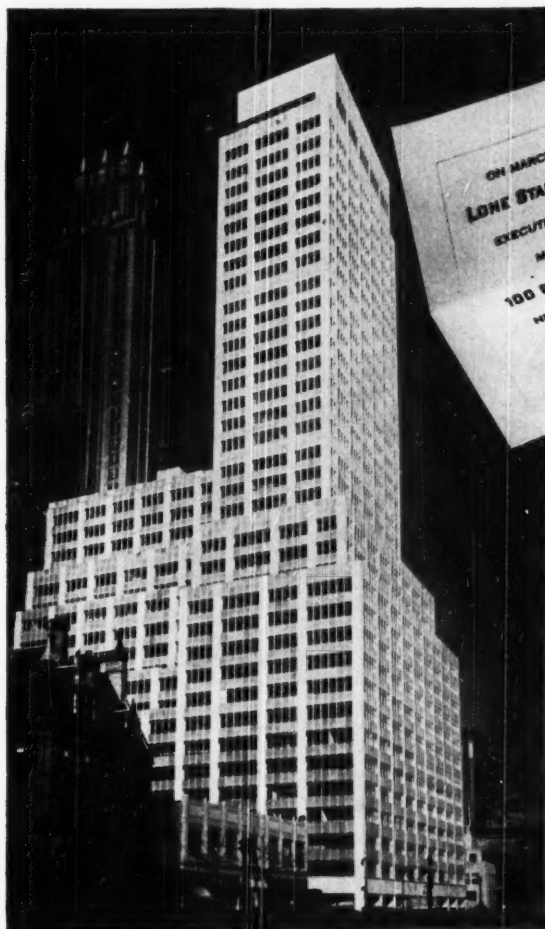
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# LONE STAR'S NEW HOME



**EXECUTIVE OFFICES**

**CONSOLIDATED**

**ON 15th FLOOR**

**OF NEW YORK'S**

**NEW 36-STORY**

**SKYSCRAPER**

- Lone Star Cement Corporation's executive and administrative offices will occupy the 15th floor in 100 PARK AVENUE, New York's new, 36-story skyscraper. This great building, almost next door to Grand Central Terminal, covers Park Avenue's westerly block-front between 40th and 41st Street, on the site of famous old Murray Hill Hotel, built in 1884, whose guests included many great figures of the day.

## Quality Construction Throughout

A public which acclaims mass-production efficiency in the automotive and other industries, has only to consider projects like this to recognize comparable efficiency in construction today.

The GEORGE A. FULLER COMPANY completed this great structure three months ahead of schedule—not on a factory assembly-line, but on a small island of ground space in a sea of heavy traffic. That this involved handling and accurate disposition of some eight-million pieces or units, in hundreds of different shapes and materials, time-scheduled for arrival and placing, gives some idea of the size, scope and efficiency of the operation.

The use of 121,112 bags of Lone Star Cement in all concrete work typifies the quality of the construction—building-dollar value at its soundest and best.

Owner: **100 PARK AVENUE, INC.**

Architects: **KAHN & JACOBS**

General Contractor: **GEORGE A. FULLER COMPANY**

Concrete Contractor: **RIZZI CONSTRUCTION CO., INC.**

Ready-mix Lone Star Concrete: **JAMES A. NORTON, INC.**

Lone Star Cement: **GENERAL BUILDERS SUPPLY CORP.**

all of New York City



**LONE STAR CEMENTS COVER THE ENTIRE CONSTRUCTION FIELD**

## LONE STAR CEMENT CORPORATION

Offices: ALBANY • BETHLEHEM, PA. • BIRMINGHAM • BOSTON  
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LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 15 MODERN MILLS, 27,500,000 BARRELS ANNUAL CAPACITY



## "DRY RESULTS OR NO PAY"

On that basis, T. H. Lee, Contractor, San Antonio, Texas, gave MORETRENCH an order to predrain his Water Street sewer excavation in Corpus Christi.

Past wellpoint failures had convinced many contractors and engineers that wellpoints would not work in the fine sand, silty clay and blue plastic mud found on this old beach front where ground water is four feet below street level.

Let's let our demonstrator's reports finish the story:

Mon. "Started pumping at 6 P.M."

Tues. "Dug a test hole this morning - water below subgrade."

Wed. "Started excavation with digging machine. Dry cut. Vertical 10-foot embankment remained in excellent shape with skeleton sheeting."

### MORETRENCH RESULTS ALWAYS PAY

- in time and money saved!  
See for yourself on your next wet job.  
CATALOG ON REQUEST.

## MORETRENCH CORPORATION

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4900 S. Austin Ave.  
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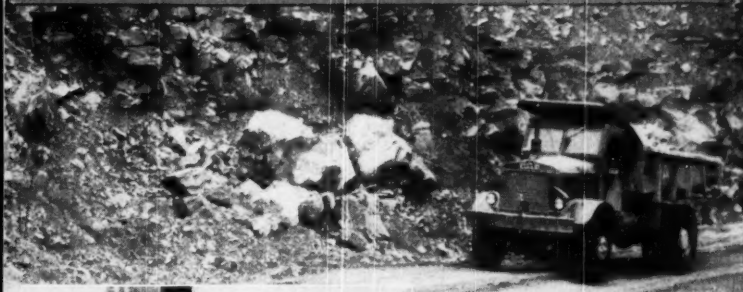
7701 Interbay Blvd.  
Tampa 9, Florida

315 W. 25th St.  
Houston 8, Texas

Rackaway  
New Jersey

# JOB PROVED... *10-Ton "EUC"*

Emerging from a tunnel which leads to an underground loading area, this Model UD starts up the haul road to the crushing plant at C. A. Langford Stone Company in Tennessee.



The Acme Construction Company uses this 10-Ton Rear-Dump on a highway construction job at Matoaka, W. Va. The "Euc" is loaded with earth and shale by a 1½ cu. yd. shovel.



Powered by a 125 h.p. diesel engine, the Model UD has a top speed of 35.7 m.p.h. and plenty of power for steep grades. The 860' haul road at the C. A. Langford quarry near Cookeville, Tenn., has a maximum grade of 10%.



High dumping angle and fast-acting Euclid hoist assure quick dumping. Here the "Euc" dumps a capacity load of limestone into crusher at the H. & R. Stone Company quarry at Ridgeville, Ind.

Built for jobs requiring a smaller capacity hauling unit for heavy off-the-highway service, the 10-Ton Rear-Dump Euclid has made good ... hauling more tons at less cost in mines, quarries, construction and industrial work. Owners like the Model UD because it is easy to handle ... has ample power and speed ... and can do a wide range of jobs economically.

You can depend on the 10-Ton Euclid for greater job profits and long service life. Your Euclid distributor will be glad to discuss your job requirements ... write or call him today for information on the Model UD Rear-Dump or the complete line of Euclid earth moving equipment.

**THE EUCLID ROAD MACHINERY CO.**

**CLEVELAND 17, OHIO**

Cable Address: Yuklid — Code: Bentley



# EUCLIDS



*Move the Earth*



# Big Bruisers



## LOOK UNDER THE HIDE

When buying, look under the hide to see what you're getting. Foresight is cheaper than hindsight.



### INDIVIDUAL FUEL INJECTION PUMPS

for each cylinder—meter the fuel, time the injection, and provide accurate injection pressure. Pumps operate at half engine speed—an important factor in their long life.



**NON-CLOGGING, SINGLE-ORIFICE FUEL INJECTION VALVES** give clean, efficient combustion throughout the entire operating range of the engine—low idle, part load or full load. They are non-adjustable and interchangeable.



**METAL-EDGE TYPE OIL FILTERS** consist of four nested parts which provide a large filtering area. The full oil flow passes through these filters continuously, allowing no chance for harmful particles to be circulated by the oil stream.

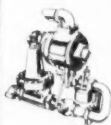


### ABSORBENT TYPE FUEL FILTERS

consist of a filter paper covered core wound with cotton yarn in a closely controlled pattern so that the entire depth catches and holds even the finest abrasive particles. The low-cost filter elements safeguard the fuel injection parts.



**CONVENIENT FUEL PRIMING PUMPS** and air bleed valves enable the fuel system to be bled with very little effort. A glass window makes it easy to tell when all air has been removed.



**AIR STARTING** consists of a vane type air motor which cranks the Diesel through a Bendix type drive engaging the flywheel ring gear. The motor, air pressure regulator, oiler, and control valve may be mounted on either side of the engine.



**ELECTRIC STARTING** consists of two 32-volt motors mounted on each side of the engine. As in the case of air starting, the Diesel is cranked through a Bendix type drive.

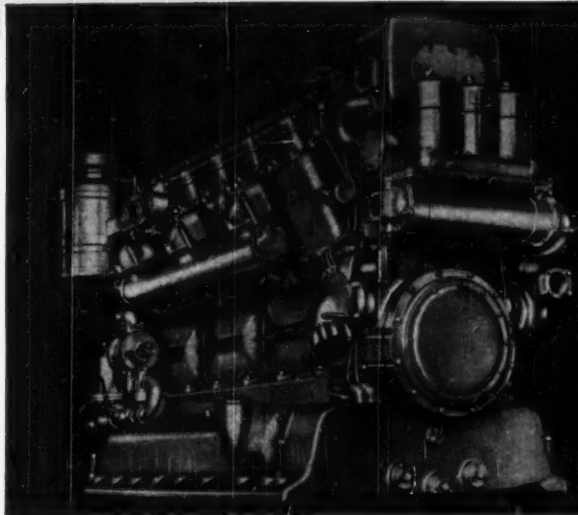


# NEED **Big Muscles**

**L**OADING, lifting and swinging a full 7-yard load from the end of a 120-foot boom is no "pantie-waist" exhibition. For handling such big bites, the Ruby Construction Company, Inc., repowered their giant Bucyrus-Monighan dragline with the big new 400-horsepower "Caterpillar" D386 Engine. Because of the power and lugging ability of the "Cat" Diesel, bucket size was increased from the original 5-yard capacity. With its more "muscular" "Cat" Diesel, the outfit has moved more earth at a faster rate than it has ever done before.

The D386 and the still more powerful D397 (500 hp.) have extended the line of "Caterpillar" Diesels to meet a much wider range of power requirements. Built in "Caterpillar's" huge new engine factory, "Caterpillar" Diesels offer you many exclusive, profit-making features. By specifying "Cat" Diesels on your equipment orders, you are assured maximum economy, utmost dependability, and lowest maintenance costs.

**CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS**



**SPECIFY** "CATERPILLAR" DIESEL POWER IN THE NEW EQUIPMENT YOU BUY — AND FOR REPLACEMENT IN THE EQUIPMENT YOU ALREADY HAVE.

**CONSIDER** the quick and efficient parts-and-repair service that is available to you (no matter where your headquarters or jobs are located).

**USE THE COUPON** for specifications and other information on "Cat" Diesels. No obligation.

## **CATERPILLAR**

REG. U. S. PAT. OFF.

## **DIESEL**

**ENGINES • TRACTORS**  
**MOTOR GRADERS**  
**EARTHMOVING EQUIPMENT**

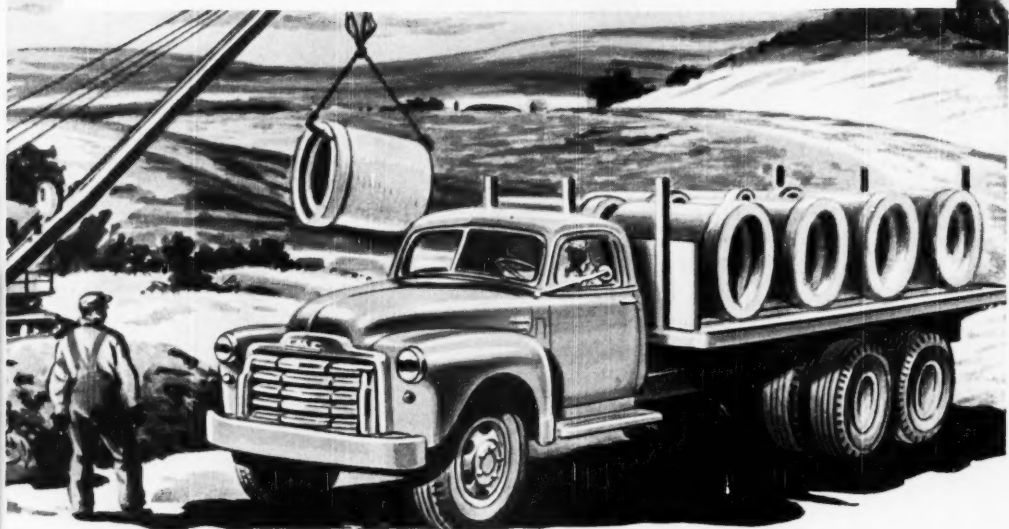
**CATERPILLAR TRACTOR CO., Box CM-3, Peoria, Ill.**

Send specification sheets on "Caterpillar" Diesel Engine models and sizes.

Name

Address

# New "MIDDLE-WEIGHT" GMC SIX-WHEELERS



## Bringing the Advantages of Dual Drive Design to Many More Truck Operators

Here's welcome news for contractors, road builders and other truck users who need trucks combining great tractive ability with low gross vehicle weight.

These new GMC series "400" and "620" 6-wheelers answer every requirement of these vocations. In the bargain they give you the plus values of GMC engineering and design . . . in powerful valve-in-head engines that are basically the same as "the Army's Workhorse" . . . in modern, wide-vision, extra comfort cabs . . . in rugged, truck-built chassis that include such outstanding features as wholly new, high efficiency dual drive axles, bumper bar grilles, recirculating ball bearing steering, Syncro-Mesh transmissions, frames of 11.1 and 16.03 section modulus.

These new GMCs offer a long-desired lower cost way of hauling big loads, on or off the roads. Let your GMC dealer give you the highly acceptable facts and figures for your particular job.

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

**GMC**  
GASOLINE • DIESEL  
**TRUCKS**

24,000 and 32,000  
pounds GVW  
•  
248 and 270 Engines  
of 110 and 120 h. p.  
•  
360 and 426 Engines  
of 150 and 177 h. p.  
•  
All-New Rugged  
Dual Drive Rear Axles  
•  
Four- and Five-  
Speed Syncro-Mesh  
Transmissions  
•  
New Heavy Duty  
Hydraulic and Air Brakes

# So - you want these on Rubber!

Have you seen the Northwest Truck Crane? Here is versatility that puts a whole line of equipment at your disposal — on Rubber!

Truck Crane, Truck Shovel, Truck Pullshovel or Truck Dragline — all easily converted from one machine to another by simply changing booms and without repositioning the base.

Here is quality construction far superior to the ordinary rig, a Northwest designed carrier that is a definite advance over the usual carrier, new smoothness and ease of operation, simplicity that assures low-cost maintenance, advantages for output not found in other machines and smart appearance that you will be proud to put your name on.

Don't buy a Truck Crane without seeing the Northwest. Let us give you full details and tell you about the many contractors that are using them.

**NORTHWEST ENGINEERING COMPANY**

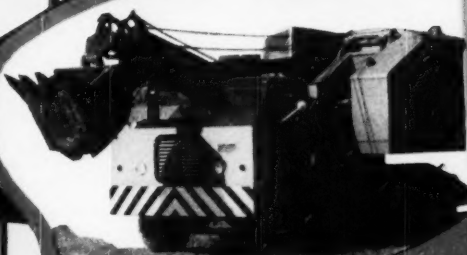
1503 Field Building, 135 South LaSalle Street, Chicago 3, Illinois

**PULLSHOVEL**



**CRANE**

**SHOVEL**



# NORTHWEST

only the best  
for the heart of the job

MAKE YOUR KEY MACHINE  
A REAL ROCK SHOVEL

**PROFIT**



# LeTOURNEAU USES...

## Velvetouch

### All-Metal Clutch Facings and Brake Linings



### on the New Model C Tornado dozer



Power control unit  
brake band lining.



Steering brake disc.



Steering and transmission  
clutch disc.



Power control unit and  
transmission clutch disc.

Fast, highly maneuverable, and extremely powerful . . . LeTourneau relies on Genuine Velvetouch all-metal clutch facings and brake linings for accurate, economical power control. Because the scientific mixture of powdered metals, used in making Velvetouch, minimizes chattering and slipping . . . insures smooth, positive operation. You'll find Genuine Velvetouch lasts longer, too . . . for being all-metal, it won't rot in oil or "burn" like conventional friction material. Send for details today.

THE S. K. WELLMAN CO., 1374 East 51st St., Cleveland 3, Ohio

FOR BRAKE AND CLUTCH USE

## Velvetouch

THE S. K. WELLMAN CO.  
WAREHOUSING CENTERS  
ATLANTA ..... 119 14th St. N. E.  
BOSTON ..... 171 Brighton Ave.  
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WASHINGTON, D. C. OFFICE  
1101 Vermont Ave., N. W.

WORLD'S LARGEST MANUFACTURERS OF ALL-METAL CLUTCH FACINGS AND BRAKE LININGS



# BLAW-KNOX

## BATCHING PLANTS

**REALLY**

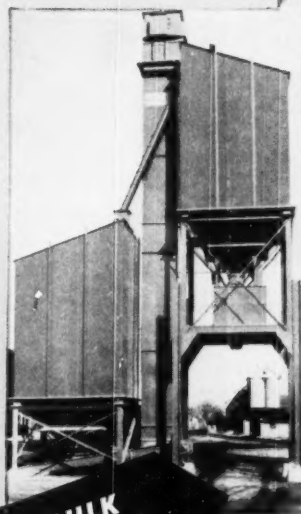
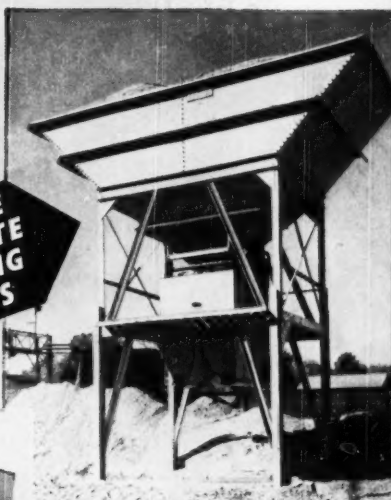
## CUT CONCRETING COSTS

HERE'S a complete line of portable batching and mixing plants that will keep your fleet of trucks moving all the time. Big capacity for aggregates and cement means there's never any waiting for the crane to catch up or for spotting cement cars for unloading. Twin batchers, and choice of manual or automatic controls for Water Weighing Tanks, electrically operated discharge gates on bulk cement plants are only a few of the features that assure fast, accurate batching.

Capacities of aggregate plants range from 100 to 120 tons in two, three or four-compartment styles, bulk cement plants of 300 and 400 barrel sizes with combination arrangements to double these capacities.

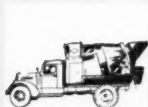
The flexibility and portability of Blaw-Knox batching and mixing plants provide the solution to ready mixed concrete operations, central mixing plants or concrete products manufacturing problems. See your nearest Blaw-Knox distributor for details.

**PORTABLE  
AGGREGATE  
BATCHING  
PLANTS**



**BULK  
CEMENT  
PLANTS**

**CENTRAL  
MIXING  
PLANTS**



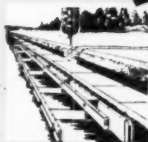
Hi-Boy Truckmixers



Clamshell Buckets



Concrete Buckets



Steel Street Forms

**TRUCK  
MIXER  
LOADING  
PLANTS**



# BLAW-KNOX

BLAW-KNOX DIVISION of Blaw-Knox Company  
Farmers Bank Bldg., Pittsburgh 22, Pa.  
Birmingham • Chicago • New York • Philadelphia • Washington



Get  
per

**BETTER HYDRAULIC OPERATION**

Use *Texaco Regal Oils (R & O)* as hydraulic mediums. These turbine-grade oils guard against sludge and rust formations, prolong pump life, assure smoother operation, reduce maintenance costs.

**TUNE IN . . . TEXACO**  
presents MILTON BERLE  
on television  
every Tuesday night.  
**METROPOLITAN OPERA**  
radio broadcasts every  
Saturday afternoon.



**TEXACO**

# more footage drill, per shift

## **TEXACO ROCK DRILL LUBRICANTS EP** **protect drills against rust and wear**

Rust and wear — chief causes of short drill life and reduced efficiency — are no problems when you lubricate with *Texaco Rock Drill Lubricants EP*. These "extreme pressure" lubricants ward off wear under the severest operating conditions, and inhibit rust whether drills are running or idle.

In addition, *Texaco Rock Drill Lubricants EP* resist wash-off . . . stay fluid at low temperatures . . . keep parts free of carbon and gum formations. Your drills get lasting protection. You get more trouble-free operation . . . more footage per shift . . . longer drill life . . . lower maintenance costs.

*Texaco Rock Drill Lubricants EP* meet the exacting specifications of leading rock drill

manufacturers and the Compressed Air and Gas Institute.

Another step to improve drilling efficiency is to make sure your air compressors deliver full volume and pressure. You can do this, regardless of your operating conditions, by using the recommended Texaco air compressor oil.

Let a Texaco Lubrication Engineer help you increase efficiency and reduce costs in all your operations. Just call the nearest of the more than 2,000 Texaco Wholesale Distributing Plants in the 48 States, or write:

★ ★ ★

The Texas Company, 135 East 42nd Street,  
New York 17, N. Y.

## **Lubricants and Fuels**

**FOR ALL CONTRACTORS' EQUIPMENT**

# "MATCHLESS

**3 C TOURNAPULLS average 144 pay yds.  
of sand per hour over 3-mile cycles  
despite continuous traffic**

Rebuilding State Highway 57 west of Carson City, Michigan, A. L. Dyer & Sons of McBrides had 210,000 yards of top soil, clay, and fine dune sand to move. While 135,000 yards of this involved cutting through the old roadbed and finish-grading 5 miles of new highway, most difficult section of the job was a 75,000-yard sand fill over 1600' of swamp. To handle 80% of the entire contract, Dyer drove in a fleet of 3 high-speed, electric-control C Tournapulls . . . and soon reported production like this:

On construction of the tough swamp fill, each pusher-loaded Tournapull heaped 12 pay yards of mixed sand and clay in 40 seconds . . . spread over distances of 25 to 30 feet in 15 seconds. Despite heavy traffic, where part of haul was over existing highway, each rig made a 3-mile round trip every 15 minutes . . . delivered 4 loads an hour. Total average daily production for the three C Tournapulls on the rugged fill assignment: 2300 pay yards!

Consistent performance like this, 16 hours a day, was possible because of Tournapull's power-proportioning differential and giant, ground-gripping tires which gave high traction in the loose sand . . . positive power steer . . . and simple finger-tip electric controls.

Says partner Lawrence Dyer, "This difficult job of handling fine dune sand had to be done with the C-type Tournapull. It's matchlessly engineered for our job."

## Check what "C's" can do for YOU

Like Dyer, you'll find it pays to use Tournapulls on all jobs — whatever the conditions — sand or muck . . . long hauls or short. Electric-control Tournapulls are good profit insurance all the year around. Get all the facts from your local LeTourneau Distributor. Why not call him TODAY.



Send NOW to: R. G. LeTOURNEAU, Inc., Peoria, Illinois for complete information on new, 30 m.p.h. C Roadster-type Tournapull for use with:

NAME \_\_\_\_\_ TITLE \_\_\_\_\_

COMPANY \_\_\_\_\_

STREET \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

Type work to be handled \_\_\_\_\_

- ☐ 13.5 cu. yd. Carryall Scraper
- ☐ 17 cu. yd. rear-dump Tournarocker
- ☐ 15 cu. yd. bottom-dump Tournahopper



# for OUR JOB,"

*says Lawrence Dyer*



C Tournapull ability to make 90° electrically-controlled turns, then accelerate rapidly to top speeds, cut important seconds off each 3-mile round-trip cycle.

Dyer's Tournapulls hauled both on and off highway on the Carson City job . . . In addition, the mobile rubber-tired rigs drove 17 miles to the job from McBrides.



**LETOURNEAU**  
EQUIPMENT DIV.



**TOURNAPULLS**

**MORE YARDS PER HOUR WITH RUBBER-TIRED POWER**

**CUMMINS**  
*Dependable*  
**DIESEL**



SINCE 1918...PIONEER OF PROFITABLE POWER  
THROUGH HIGH SPEED DIESELS

Here's what you get with

**Cummins  
Diesels**

Here are four more honest-to-goodness  
examples of how owners have saved  
money—and made money—with Cummins  
Diesel Engines:



*Service*

One of the more  
than 200 Cummins Dealers is as  
close as your phone.

**Hightspeed Diesel Engines (50-550 hp) for:**

On-highway trucks • off-highway trucks • buses • tractors •  
earth-movers • shovels • cranes • industrial locomotives •  
air compressors • logging yarders and loaders • drilling rigs •  
centrifugal pumps • generator sets and power units • work  
boats and pleasure craft.

**C U M M I N S   E N G I N E   C O M P A N Y**

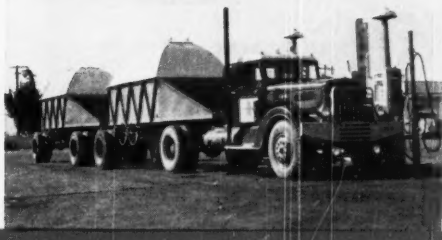
## LESS FUEL

A Model 710 Osgood shovel equipped with a 1¼-yard bucket and powered with a 150 hp Cummins Diesel uses approximately 14 gallons of Diesel fuel in eight hours. A comparable unit powered with a gasoline engine working on the same job uses 45 to 50 gallons of fuel a shift. This fuel economy report comes from Clarke Certified Concrete Company, Inc., Baltimore, Md.



## LESS MAINTENANCE

Permanente Cement Company, Permanente, Calif., standardizes on Cummins Diesels because of their performance and economy. This leader in the cement industry uses 18 Cummins Diesels to power Peterbilt and Sterling tractors pulling flat bed trailers on line-haul work . . . also operates two Cummins-Powered Diesel-electric locomotives. L. M. Minich, Equipment Superintendent, says: "We're sticking to Cummins Diesels and Cummins parts and getting trouble-free transportation."



## LONGER LIFE

For 15 years a 150 hp Cummins Diesel powering a six-inch Durant pump on a dredge worked eight hours a day . . . with only two overhauls. G. L. Anderson, owner of Anderson Gravel Company, Amite, La., says: "I wouldn't have any other power. That 15-year-old Cummins Diesel gives me such good service that when I started using a second dredge, I bought another one just like it."



## MORE WORK

Production of crushed stone and agricultural lime averages 1,200 to 1,500 tons an eight-hour day in the Mulzer Brothers' quarry near Eckerty, Ind. For reasons of economy and increased production, Mulzer Brothers standardize on Cummins Power. A supercharged HRIS-600 Cummins Diesel powers a No. 2540 Austin-Western crusher and feeder; two LP-600 engines each power a No. 28 Gilson pulverizer; and a fourth Cummins Diesel powers a Type No. 604 Lima shovel.



These typical examples of the profit-making power furnished by Cummins Dependable Diesels explain why men who pay the most attention to cost sheets and profit and loss statements choose Cummins Power. Write for further proof that Cummins Diesels can save and make more money for you.

*Cost Conscious?*

**CHOOSE CUMMINS DIESELS**

**I N C . • C O L U M B U S , I N D I A N A**

EXPORT: CUMMINS DIESEL EXPORT CORPORATION • COLUMBUS, INDIANA, U.S.A. • CABLE: CUMDIX

# FOR THE TANDEM DRIVES ON "CATERPILLAR" DIESEL MOTOR GRADERS



## DIAMOND ROLLER CHAINS



● Incorporated in the efficient, trouble-proof tandem drive furnished on the many-purpose "Caterpillar" Diesel Motor Graders are Diamond  $1\frac{1}{4}$ " pitch Roller Chains of high strength and reliability. The tandem wheels on both sides are positively driven, the chains operating equally well even when slight flexing occurs.

Since the modernizing of road and

construction machinery began, Diamond Roller Chains have given ample proof of their outstanding reserve strength, uniformity of quality, and long-life dependability.

### DIAMOND CHAIN COMPANY, INC.

Dept. 418 402 Kentucky Avenue, Indianapolis 7, Indiana

*Offices and Distributors in all principal cities.*

Refer to the classified section of your local telephone directory under the heading CHAINS or CHAINS-ROLLER

# DIAMOND



# ROLLER CHAINS



# LORAIN gives you MORE in a MOTO-CRANE

## MORE "KNOW-HOW"

Over 30 years of accumulated experience since Thew-Lorain built the world's first "truck-crane" in 1918.

## MORE CAPACITY

From 10 ton to the 45 ton Lorain MC-820, world's largest crane on rubber.

## MORE MOBILITY

In the greatest choice of 2-Engine Moto-Cranes (Top Speed 30 MPH+) and Single-Engine Self-Propelled (Top Speed 8 MPH).

## MORE DRIVING COMBINATIONS

17 choices of 6 and 4 wheel Carriers, with 2, 4 and 6 wheel drive.

## MORE CARRIER

Since 1939 Thew-Lorain has designed and built its own Carriers exclusively for use as shovel-crane mountings.

## MORE MANEUVERABILITY

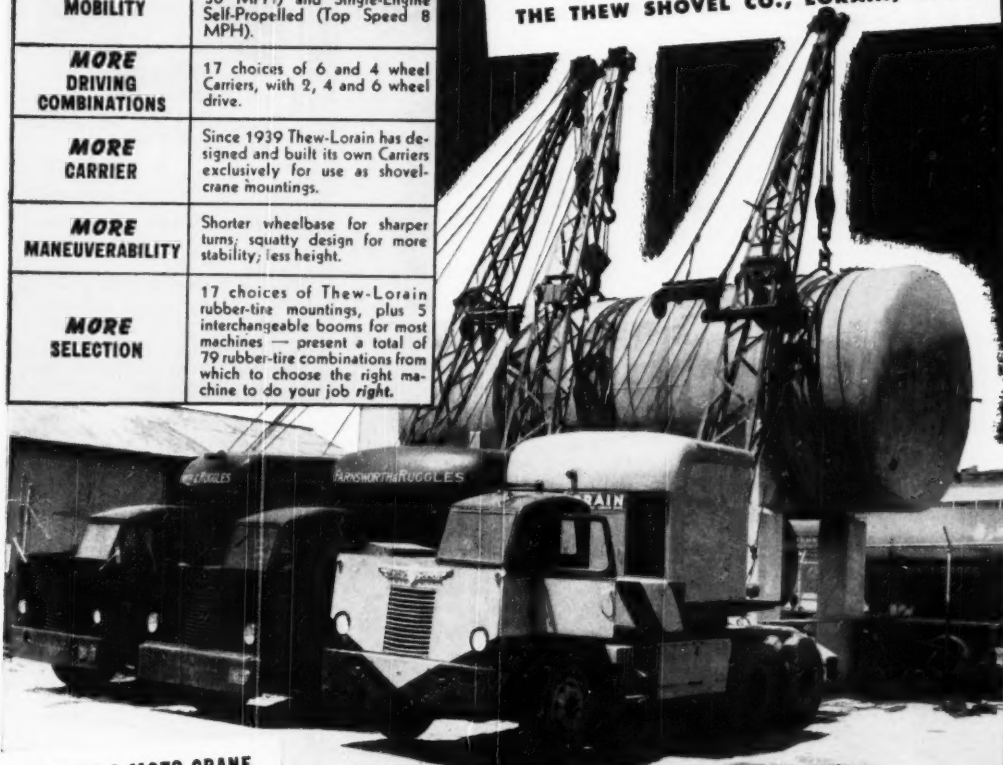
Shorter wheelbase for sharper turns; squatty design for more stability; less height.

## MORE SELECTION

17 choices of Thew-Lorain rubber-tire mountings, plus 5 interchangeable booms for most machines — present a total of 79 rubber-tire combinations from which to choose the right machine to do your job right.

To get the most for your money in rubber-tire shovel-crane, check Lorain Moto-Cranes before you buy. Check the list at left — and see your Thew-Lorain Distributor for more reasons that make Moto-Cranes the best buy on rubber!

**THE THEW SHOVEL CO., LORAIN, OHIO**



**IT ISN'T A MOTO-CRANE  
UNLESS IT'S BUILT BY  
THEW-LORAIN**



When your job calls for rubber, see your Thew-Lorain Distributor first . . . for the best on rubber!

**THEW LORAIN®**  
**MOTO-CRANES**  
*First on Rubber*

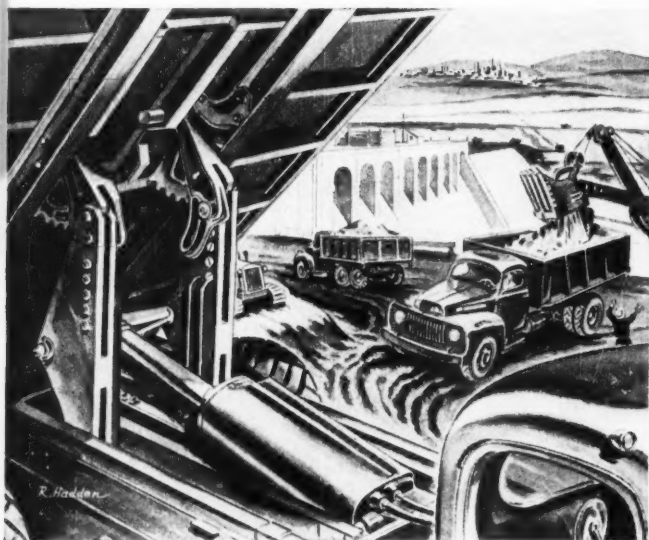
# GALION

*Allsteel*

## HOISTS and DUMP BODIES are "Job-Engineered" For maximum payload service

For fast, economical handling of loads from 2½ to 25 tons, equip trucks with Galions. Over the past 25 years they have earned a reputation among contractors and operators to stand up best even on the toughest materials handling jobs. And Galion's improved equalizing double lift arm hoists are unparalleled for dependable maintenance-free service. To speed up 1950 material handling contracts see your local truck dealer or Galion distributor about Galions' "job-engineered" superiority or write for bulletin G 49.

**The GALION Allsteel Body Co., Galion, Ohio**



**GALIONS Lift More . . . Last Longer**

## Austin-Western



**24 years ago in  
Construction Methods and Equipment**

Here are 8 other manufacturers of rollers and graders who advertise in CM&E to reach construction men "on location"—men who powerfully influence the buying of whatever they operate and maintain:

J. D. Adams Mfg. Co.  
Allis-Chalmers Mfg. Co.  
Caterpillar Tractor Co.  
Clyde Iron Works, Inc.  
Galion Iron Works & Mfg. Co.  
Huber Mfg. Co.  
Riddell Co., W. A.  
Rome Grader & Machinery Div.,  
Union Fork & Hoe Co.

## CONSTRUCTION METHODS AND EQUIPMENT

January 1950



**SINCE 1919 THE PRACTICAL WORKBOOK**

Approved Publication of American Society of Civil Engineers  
Listed in the Engineering Index—World's Largest Engineering Index  
A. S. C. E. P. U. S. A.

# advertises in Construction Methods and Equipment

... and has for 24 years

## WHY?

... because CONSTRUCTION METHODS AND EQUIPMENT readers—construction engineers and contractors—buy and use Austin-Western road machinery.



How Austin-Western uses CM&E today—to increase sales; to cut sales costs

Austin-Western knows the powerful voice of the men "on location" in deciding whose machinery to buy. They're the men responsible for getting construction work done—on time and at a profit.

They favor equipment they *know*, equipment they're familiar with, equipment that matches up with their responsibility.

Since these are the kind of men who read CM&E\*, CM&E is where Austin-Western advertises—and has since 1926... to multi-

\*26,500 paid subscribers (6/30/49 ABC)... and thousands of "pass-along" readers.

ply its sales contacts with them... to fan their interest in its machinery... to familiarize them with what *using* its machinery means in faster, better, lower-cost work... in construction mechanization.

If YOUR product is one that construction engineers and contractors use, advertising in CONSTRUCTION METHODS AND EQUIPMENT will help your salesmen and your distributors' salesmen *make more sales*... in a 1950 construction market that promises to beat 1949's peak.

## CONSTRUCTION

OF CONSTRUCTION MECHANIZATION • MCGRAW-HILL PUBLISHING CO., INC. • 330 WEST 42d STREET, NEW YORK 18, N.Y.

## METHODS AND EQUIPMENT



**New FREE booklet shows builders**

how to streamline  
every phase of your

**FIGURING WORK—**  
add to **PROFITS** with the  
Printing Calculator

The **ONLY** calculating  
machine that **PROVES**  
as it **FIGURES**



**Remington Rand, Business  
Machines & Supplies Division**  
315 Fourth Ave., New York 10

Please send me a **FREE** copy of "Blueprint for Figure-Fact Efficiency"—  
the booklet that shows how to **CUT COSTS** the Printing Calculator way.

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

Zone \_\_\_\_\_

State \_\_\_\_\_

CA-4

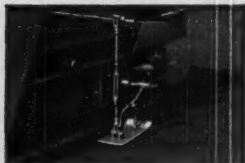
This valuable new Remington Rand publication "A Blueprint for Figure-Fact Efficiency" is slanted for **YOUR** use in every phase of building and construction. It tells you graphically how to take money-saving short-cuts in Estimating, Computing, Checking Costs, Figuring Payrolls and Compensation Insurance. It shows you how the famous Printing Calculator, with its **faster 10 Key Keyboard**, automatic division and direct multiplication, its lightning-quick listing, adding and subtraction—can **SAVE** for you all along the line. With the Printing Calculator you get these advantages plus **PRINTED PROOF**—a constant visual check on every step. Send the coupon today.

**Remington Rand**  
**PRINTING CALCULATOR**

Copyright 1950 by Remington Rand Inc.



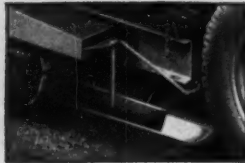
# Here's why you want a Jaeger Model BP-5



**1. AUTOMATIC MATCHING** of any adjacent course, curb, gutter or other grade line.



**2. TWIRL A WHEEL TO CHANGE WIDTH:** Lays any width 5'8" to 12'6", without adding parts.



**3. SMOOTHEST RIDING SURFACES:** 12' longitudinal floating runners equalize screed level.



**4. NO PREMATURE SEALING:** Weight and traction are on the hard subgrade or completed course — never on the newly-laid surface.



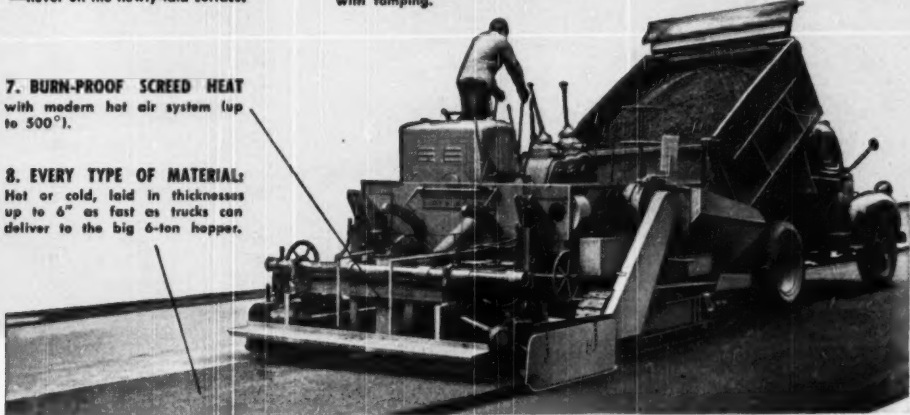
**5. MORE UNIFORM MAT:** Fast-oscillating, bevel-toothed screeds, tiltable as needed, work material to a uniform density not possible with tamping.



**6. LAYS FLUSH TO CURBS** and blends perfect-sealing joints between lanes.

**7. BURN-PROOF SCREED HEAT** with modern hot air system (up to 500°).

**8. EVERY TYPE OF MATERIAL:** Hot or cold, laid in thicknesses up to 6" as fast as trucks can deliver to the big 6-ton hopper.



For ability to lay all types of bituminous pavements to uniform density and smoothness, under varied conditions, no other machine approaches the Jaeger Model BP-5.

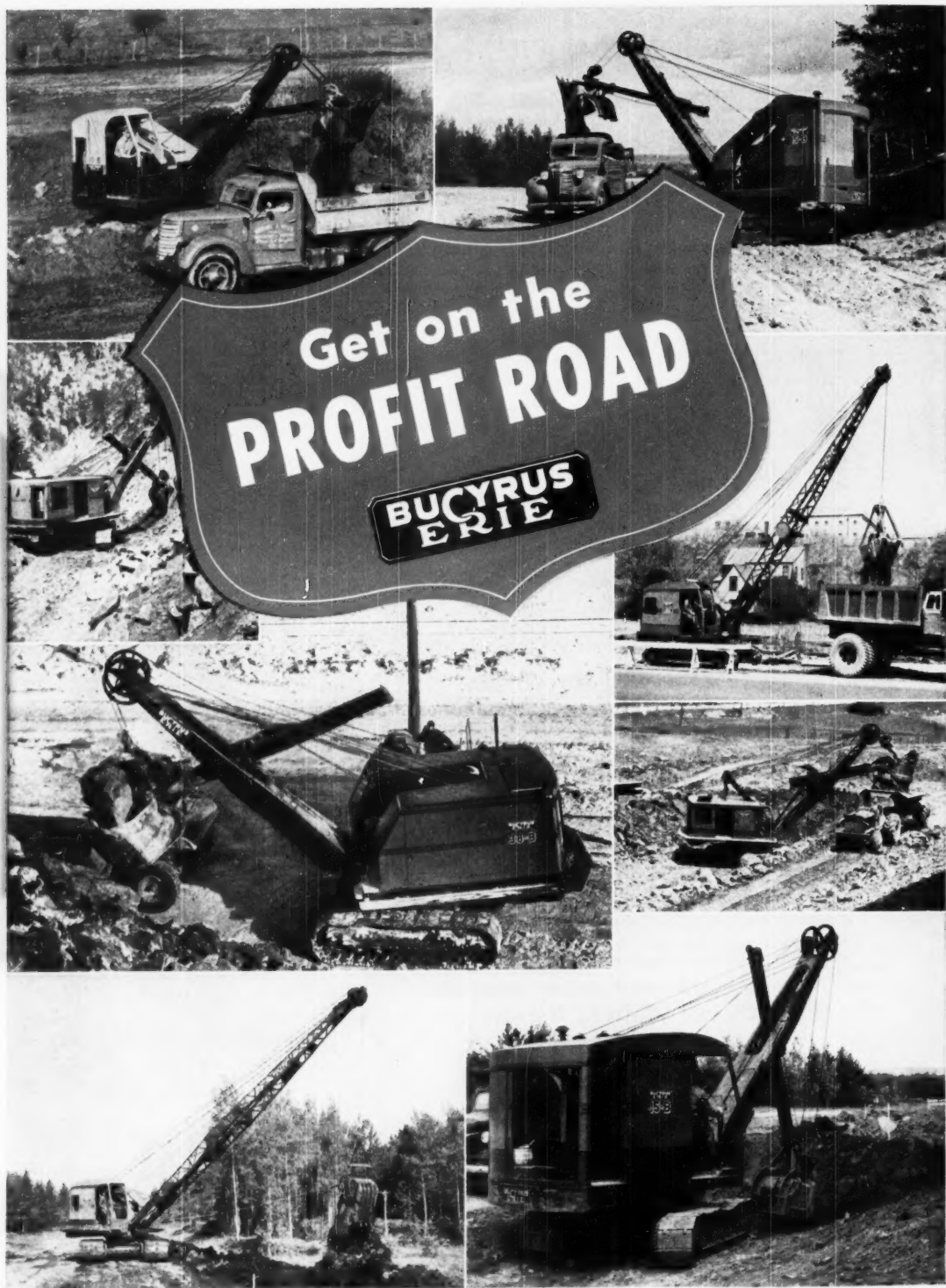
## and its low cost team-mate

**JAEGER PAVER-TYPE AGGREGATE SPREADER** — the first self-propelled spreader that accurately lays all base and surface aggregates, plant-mixed stabilized soil or free-flowing bituminous mixtures up to 10" thickness, in 8' to 12½' widths. Ask for catalogs.

**THE JAEGER MACHINE CO., Columbus 16, Ohio**  
Distributors in 130 cities of the U. S. and Canada



**JAEGER**  
engineered equipment  
COMPRESSORS • DIAGONAL SCREED FINISHERS



There's a fast, efficient, dependable Bucyrus-Erie in the size and capacity you need to put your highway jobs on the profit road. See your Bucyrus-Erie distributor for full details on these outstanding  $\frac{3}{8}$ - to  $2\frac{1}{2}$ -yard convertible excavators.

**BUCYRUS-ERIE COMPANY**  
SOUTH MILWAUKEE, WISCONSIN

HUNDREDS OF HYSTAWAYS IN USE ALL OVER THE WORLD...

it's a DRAGLINE

it's a CRANE

it's a CLAMSHELL

it's a BACK HOE

*...and now*

**THE HYSTAWAY<sup>®</sup>**  
is also a  
**SHOVEL**

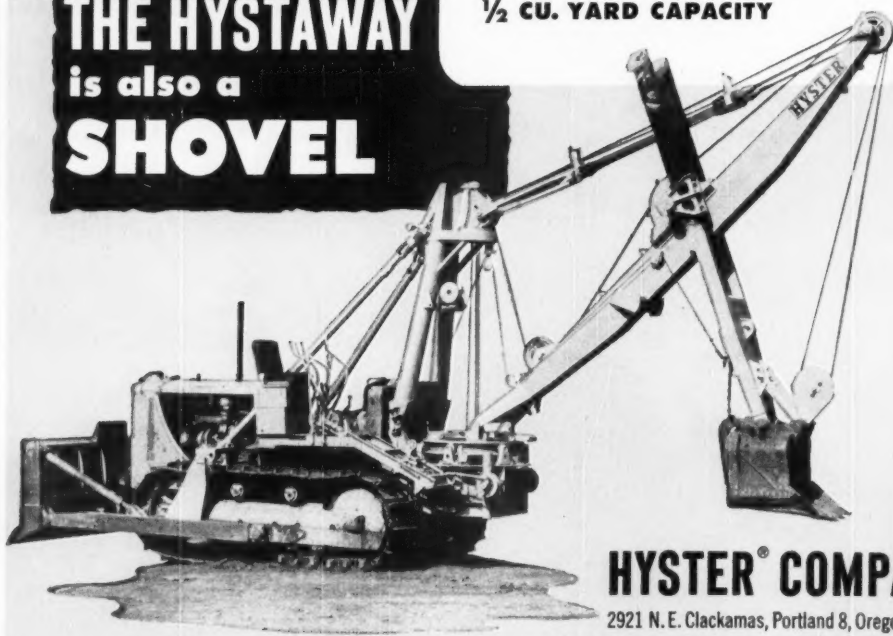
**HYSTAWAY—5 tools in 1—for mounting on all "Caterpillar" D8 and current series D7 track-type tractors (Dragline, Crane and Clamshell also applicable to D6.) On in 2 hours, off in 1.**

And the newest tool in the Hystaway combination—a shovel front—makes Hystaway an even more valuable earthmoving machine.

The Hystaway Shovel Front possesses all of the advantages of a conventional shovel, *plus* full tractor mobility, *plus* an excess of power, *plus* an extremely fast swing, *plus* an unusually long reach.

Hyster's line of 29 tractor tools (including the Hystaway) is sold and serviced by "Caterpillar" distributors everywhere. Current delivery. Write for literature.

**½ CU. YARD CAPACITY**

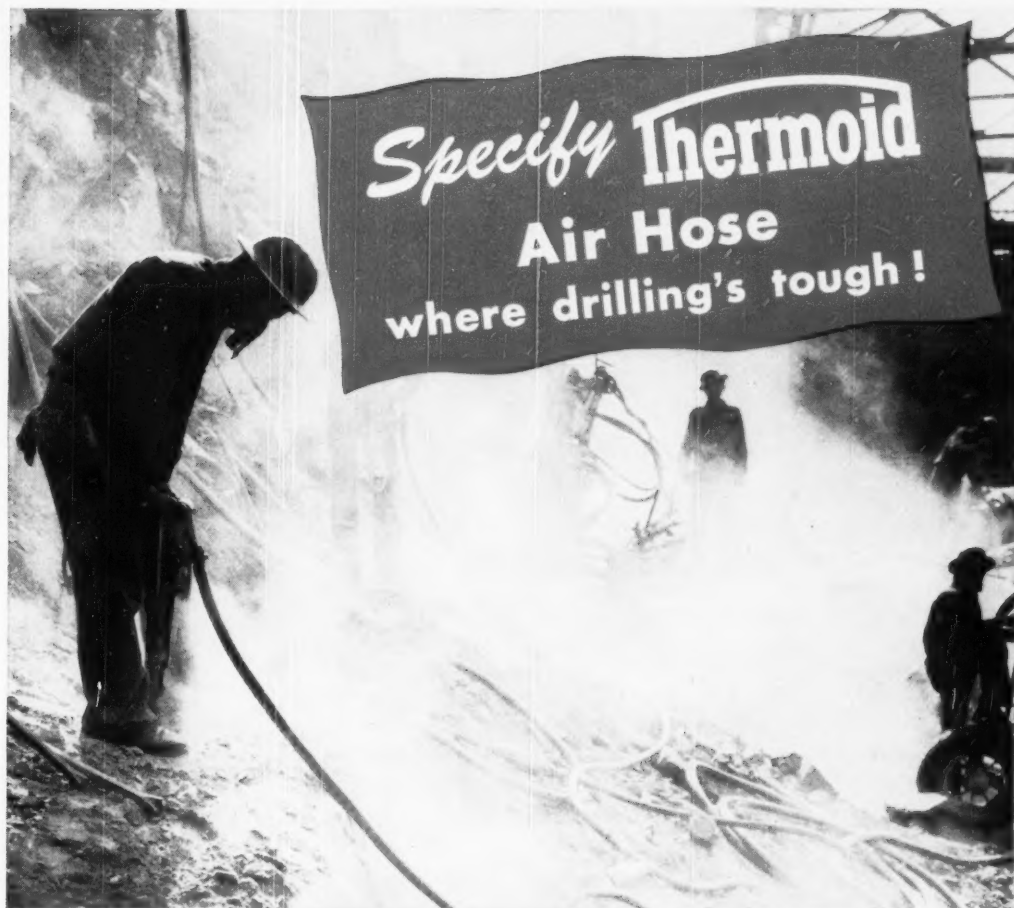


**HYSTER<sup>®</sup> COMPANY**

2921 N. E. Clackamas, Portland 8, Oregon  
1821 North Adams St., Peoria 1, Illinois







## Thermoid Research Gives Greater Flexibility and Wear-ability to New-Type Hose!

Thermoid has designed *Thermine* Air Hose especially for more efficient and economical use in drilling operations—from construction jobs to mining.

Increased flexibility allows greater freedom of movement and permits bending the hose easily around tight corners. A heavy synthetic rubber

oil-proof tube is reinforced with heavy braided rayon cord. Smooth, extra-heavy rubber cover offers maximum resistance to abrasion and cutting by sharp rocks.

*Thermine* Air Hose is mandrel-built from  $\frac{1}{4}$ " to  $1\frac{1}{2}$ " inclusive in 50 ft. lengths. Available at your nearest Thermoid Distributor.

*Thermoid Quality Products: Transmission Belting • F.H.P. and Multiple V-Belts • Conveyor Belting • Elevator Belting • Wrapped and Molded Hose • Molded Products • Industrial Brake Linings and Friction Materials.*

**For Complete Satisfaction Specify Thermoid!**

**Thermoid  
Company**

Main Offices and Factory • Trenton, N. J., U. S. A.  
Western Offices and Factory • Nephi, Utah, U. S. A.  
Industrial Rubber Products • Friction Materials • Oil Field Products



# CLEVELAND TRENCHERS

## *Cut Costs 4 Ways!*

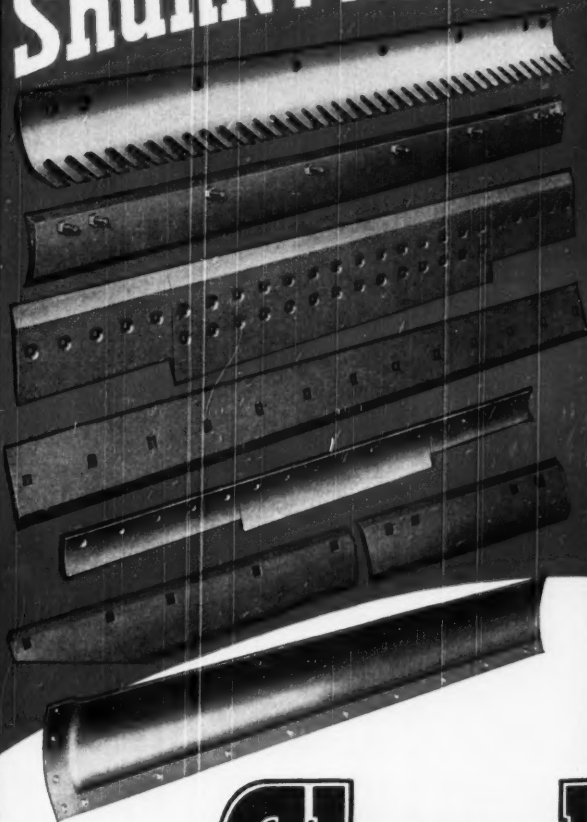


- 1** CLEVELANDS set a fast pace out in front on your jobs, helping you stay on schedule. Their speed, easy handling and plenty of smooth power give you top yardage when time is pressing.
- 2** CLEVELANDS are built rugged, built with extra stamina for long continuous performance under the most punishing field conditions, built to need less attention and cut maintenance costs.
- 3** CLEVELANDS superior flexibility and the speedy way they move from job to job mean you can use each machine on more jobs and on more different kinds of jobs than ever before.
- 4** CLEVELANDS give you new low fuel and operating expense.

Learn today how CLEVELANDS can pay off for you. See your local distributor or write direct.

**THE CLEVELAND TRENCHER COMPANY**  
20100 ST. CLAIR AVENUE • CLEVELAND 17, OHIO

**THERE IS NO SUBSTITUTE  
FOR A  
Shunk PRODUCT**



SHUNK PAT'D SCARIFYING  
AND ICE BLADES

SHUNK GRADER BLADES

SHUNK OFFSET BLADES

SHUNK EXTENSION BLADES

SHUNK DRAG AND  
MAINTAINER BLADES

SHUNK SPECIAL BLADES

SHUNK BACK SLOPER BLADES

SHUNK MOLDBOARDS

SHUNK MOLDBOARD END  
BOOTS

SHUNK SCARIFIER TEETH

SHUNK BUCKET LIPS



**Shunk**



*Since  
1854*



*Quality  
and  
Service*

**SHUNK MFG. COMPANY Bucyrus, Ohio, U. S. A.**

# It's the Best Motor Oil known to Science



(Partial view of the enormous new lubricating oil plant at Lake Charles, La., where this great new oil is processed.)

## "ANTI-FOULING" OIL made by the Remarkable new "HEART-CUT" PROCESS

**This new oil—the best known to science...  
gives you a cleaner engine...more economy  
...minimum carbon residue.**

It's here now! The remarkable motor oil from the giant new \$42,000,000 lubricating oil plant at Lake Charles, La. The plant that's been the big talk of the oil industry for months.

New Premium Koolmotor is made by the unique "Heart-Cut" Process which retains only the choicest part of the finest crudes. It's so superior that in recent engine tests it outscored nine other major premium motor oils. No wonder Premium Koolmotor is better in every way! Cleans better, seals better, cools better and fights acid, sludge and corrosion far more effectively. Switch to this remarkable new oil today.



*start saving Dollars today...stop at*  
**CITIES  SERVICE**



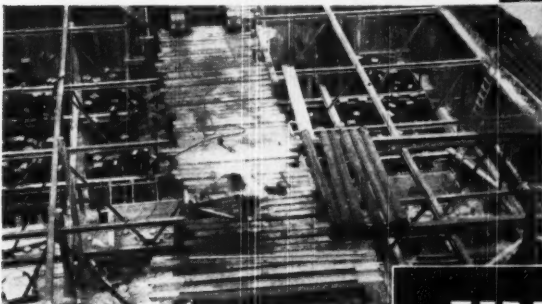
# On a firm foundation ...with fast-driving MONOTUBE PILES

**T**HIS striking, functionally designed structure is one of the most modern of office buildings—inside and out. Wise planning went into the foundation. It included Monotube piles for abundant strength and permanency . . . combined with *practical economy* right from the start.

More and more engineers and contractors are turning to the Monotube as the concrete cast-in-place pile that helps reduce costs from start to finish. For example: the tapered, fluted design results in greater economy—shorter length piles with less concrete. The “cold-rolling” process of manufacturing gives Monotubes greater physical strength; yet their light weight and ease in handling result in speedy driving.

Monotubes come in varying lengths, tapers, diameters and gauges, providing a flexibility which will meet virtually any soil condition—assurance that jobs started with Monotubes *can be completed* with them. Only light, standard driving equipment is required for Monotubes. There's minimum cut-off waste—and they're easily extendible to any length, right on the job.

These are only a few of the important features that you can apply to advantage when you plan with Monotubes. For complete, specific data, write The Union Metal Manufacturing Co., Canton 5, Ohio.



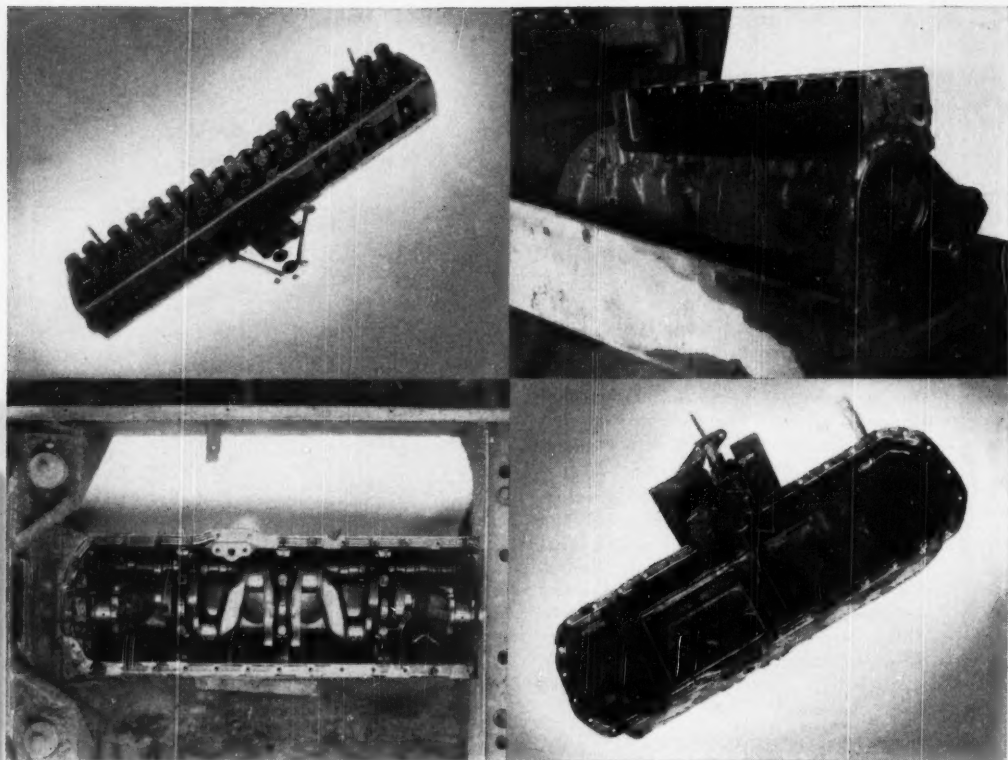
● Foundation under way, showing use of some 490 Monotubes piles, 25 and 30 feet in length.



● Ultra-modern 18-story office building of the Waterman Steamship Corp., Mobile, Ala. (Engineers and General Contractors: J. P. Ewin, Inc.; Consulting Engineer: R. S. Christiansen; Architects: Platt, Roberts & Co.)

## UNION METAL

*Monotube Foundation Piles*



## After 122,000 tough miles, engine looks like this . . .

● These bus engine parts have seen over 122,000 miles of hard service. They have not been cleaned but are shown exactly as they came from the engine. Nevertheless, they are entirely free from deposits that would interfere with satisfactory operation.

Here is visible evidence of superior lubrication by STANOLUBE HD Motor Oil. The benefits of this lubrication have meant important savings for the Arrow Coach Lines, Ottumwa, Iowa. Mr. Robert Galpin, manager, reports: "We started using STANOLUBE HD Motor Oil in our 17 buses in September, 1945 and since that time have *doubled our engine life* (between complete overhauls). We attribute this largely to cleaner-running engines."

The advantages offered you by STANOLUBE HD go hand in hand with the benefits of an automotive engineering service that's unique in the Midwest. The Standard Oil Company has located practically at your doorstep a specially

### Stanolube HD Motor Oil

trained and experienced lubrication specialist. This man will give you an "on-the-spot" engineering service that's vital to fleet operations. His headquarters are the nearest Standard Oil Company (Indiana) office. You can obtain his assistance by contacting that office or writing: Standard Oil Company (Indiana), 910 South Michigan Avenue, Chicago 80, Illinois.

**STANDARD OIL COMPANY (INDIANA)**



# STOP

New, Heavy-Duty,  
Vibration-Proof

## CONTRACTOR'S FLOODLIGHT

Here is the floodlight that will prevent those costly on-the-job blackouts. Designed for heavy duty lighting on shovels, draglines, trenching machines and other equipment. Custom built and field tested to give trouble-free performance under the most severe working conditions.

This versatile floodlight can be mounted in any position and adjusts readily to any focus from spot to full flood.

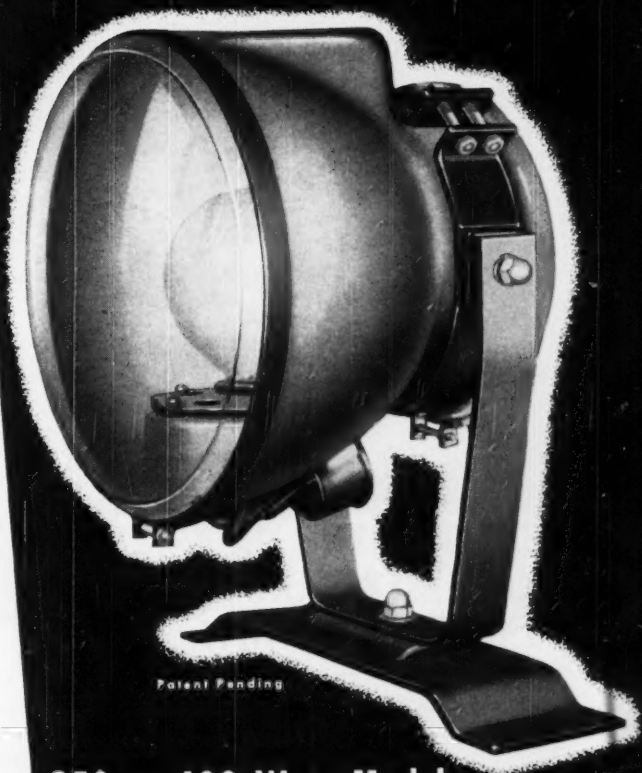
### CHECK THESE FEATURES FOUND ONLY IN THIS FLOODLIGHT:

- One piece, cast aluminum casing.
- 16 gauge, heavily chrome-plated copper reflector. Adjusts from spot to full flood.
- Heavy duty, heat-resisting Pyrex lens.
- Standard  $\frac{3}{8}$ " stove bolts are used to hold lens ring and back clamping plate.
- Bulb is mounted in a vertical position in a rubber diaphragm, and is cooled by a continuous stream of cold air passing through the diaphragm, over the bulb and out a water-proof air vent in the top of the casing.
- Lighting cord is attached to light with a Hubbel quick-twist lock connector.
- Full universal mounting permits traversing, elevating and depressing through 360°.
- Heavy steel base and universal mounting bracket.
- Casing opens from back, making bulb changing easy, with less chance of breakage.

Distributors: Several desirable territories available—write us.

**CONTRACTOR'S  
FLOODLIGHT MFG. CO.**  
30425 FORD ROAD  
GARDEN CITY, MICHIGAN

# ON THE JOB BLACKOUTS



Patent Pending

**250 or 400 Watt Model**

**Other Models for Cab or Boom Mountings  
250 to 1000 Watts**

Write for information on all models

**CONTRACTOR'S FLOODLIGHT MFG. CO.**  
30425 Ford Road, Garden City, Michigan

Please send me complete information on all models of  
Contractor's Floodlights (250 to 1000 watts)

Name

Company

Title

Address

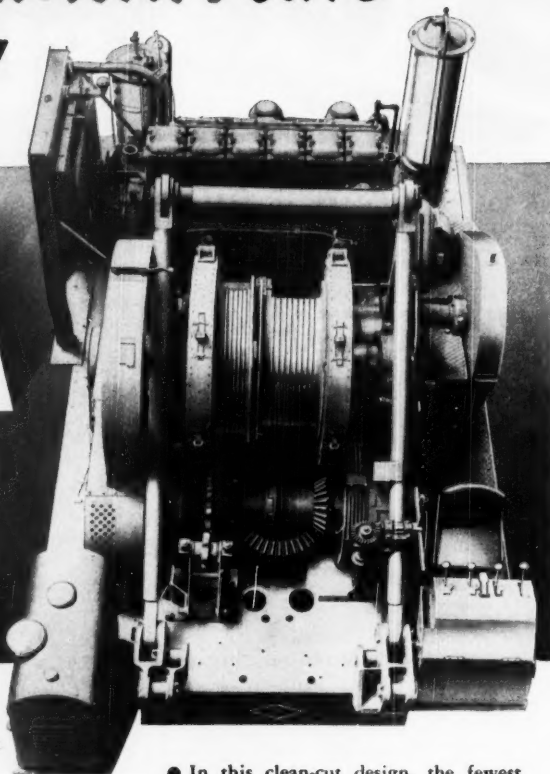
City  State



# *Built-in STAMINA cuts* **"DOWN-TIME"**

## **of** **LIMA** **Shovels, Cranes** **and Draglines**

**EXAMINE THE MAIN  
MACHINERY AND YOU'LL  
UNDERSTAND WHY!**



● In this clean-cut design, the fewest possible number of shafts are required to transmit power from engine to dipper. Important bearings, including those in the drum, are anti-friction type. Large drums increase output and minimize cable wear. Permanently aligned shafts prevent chattering and grabbing of clutches. Extra-rugged construction of machinery base, truck and front end equipment provides ample strength to withstand heavy loads. These are only a few of the reasons why LIMA machines are making records of outstanding performance with *minimum down-time*.



The LIMA line includes Shovels  $\frac{1}{4}$  to 6 yards, Cranes to 110 tons, and Draglines Variable. Rubber-Mounted units are available with  $\frac{1}{4}$  and 1 yard shovels and 35 ton cranes. Offices in principal cities of the world.

## **Lima Shovel and Crane Division**

LIMA, OHIO

OTHER DIVISIONS: Lima Locomotive Works Division; Niles Tool Works Co.; Hooven, Owens, Rentschler Co.

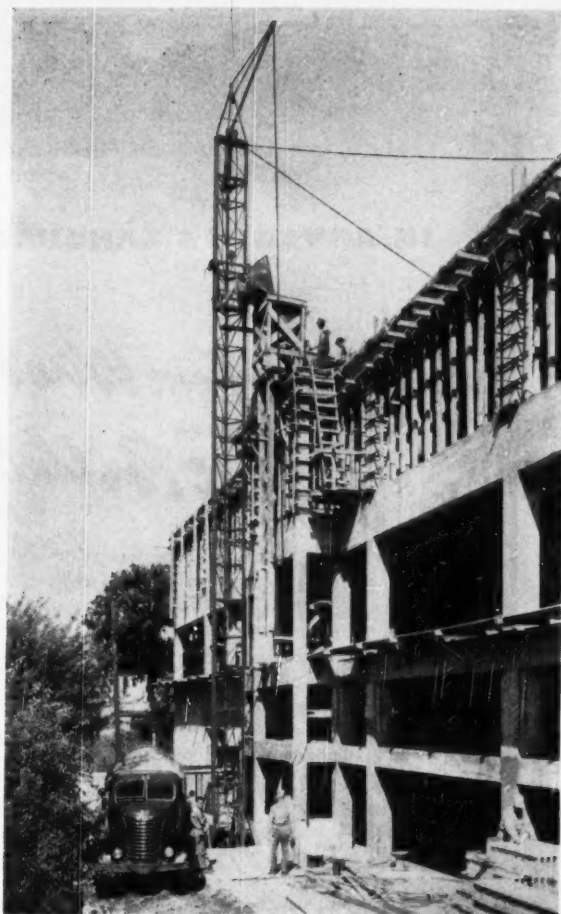




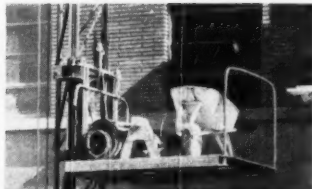
**Here's why  
you see  
so many**

# **American Portable Material Elevators!**

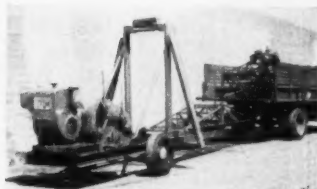
● Up fast, down fast . . . *works fast!*  
That's why the self-erecting  
American Material Elevator now  
replaces clumsy, costly  
wooden towers on so many jobs. It's  
dis-assembled quickly; moves  
anywhere on one truck. Lifts 2500 lbs.  
any height up to 90 feet.  
Up to 47 feet, tower needs no  
guying. Speeds your work . . . conserves  
manpower . . . cuts costs  
amazingly. Rent or buy it from your  
American Hoist distributor.  
Mail coupon below for literature.



**CHICAGO BOOM** with 9-foot radius handles bulky materials with crane action. Does not interfere with operation of bucket or platform.



**"SKIP" PLATFORM** is 6'x6', big enough for two wheelbarrows. Easily interchanges with automatic concrete bucket (shown above).



**TRAILER WHEELS** permit moving from job to job without dismantling. Entire unit with 47 ft. tower weighs only 5100 lbs.

**American Hoist  
& DERRICK COMPANY  
St. Paul 1, Minnesota**

Plant No. 2: SO. KEARNY, N.J.

Sales Offices: NEW YORK • PITTSBURGH • CHICAGO

American Hoist & Derrick Co.  
St. Paul 1, Minnesota

5251

● Please send catalog on Material Elevators.

Name

Company

Address

City  State

IN ANYBODY'S LANGUAGE-



## Bethlehem Wire Rope Means Low Cost Per Unit of Work

In country after country all over the world Bethlehem wire rope has consistently proved its basic economy. Reason: its long life in service, which means low cost per unit of work—the only true yardstick of rope costs.

Every wire rope will do a certain amount of work, and it is often possible to record this in terms of definite units. That is, throughout its life the rope will move so many cubic yards of rock, or haul so many loaded cars up a hill, or lift and lower so many tons of drill pipe through varying distances, etc. Obviously, the rope cost should not be measured by purchase price alone, but by the cost of each unit of service the rope gives you.

In other words, the rope with the low price tag may look like a bargain, yet render such limited service that the cost per unit of work is high. On the other hand, a quality rope—costing more at the time of purchase, perhaps—can be a *real* bargain because of the long-term, efficient job it does.

Bethlehem wire rope is a quality product, made by craftsmen in one of the world's finest mills. It is built to give the user low cost per unit of work . . . to give him his money's worth and more. You can buy it with confidence; use it with the knowledge that it will serve you long and well.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by

Bethlehem Pacific Coast Steel Corporation

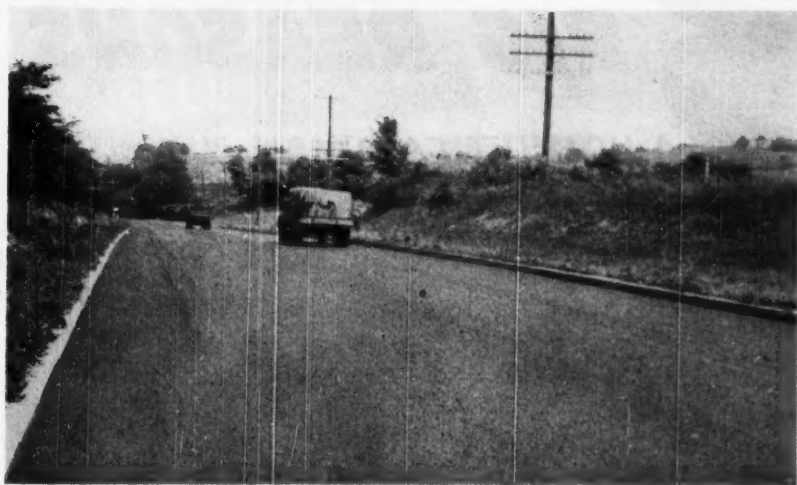
Export Distributor: Bethlehem Steel Export Corporation



廉低用費 位單之功

Geringe Kosten per Arbeit

# For this New Jersey State Highway



Texaco Asphaltic Concrete paving on State Route 28 (US 22) near Clinton, N. J. Constructed with asphalt mix furnished by Somerset Crushed Stone, Inc. of Bernardsville, N. J.

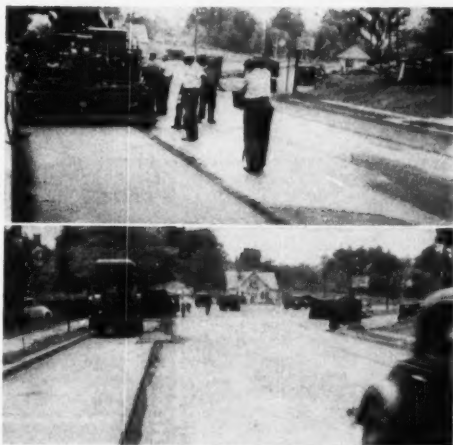
a pavement that absorbs impact, resists wear, needs no joints

## Texaco Asphaltic Concrete

On New Jersey's Route 28, just as on US 81 in Texas, Worcester Turnpike in Massachusetts, New York's Route 17 and Illinois' Route 37, you will find heavy-duty Texaco Asphaltic Concrete paving. These and many other States know from experience on their own highways the ability of this hot-mix, hot-laid type of Asphalt pavement to stand up under the heaviest State Highway traffic. Not only does Texaco Asphaltic Concrete possess rugged endurance, but it has demonstrated conclusively by actual performance its low upkeep cost.

Pave primary highways, important city streets and major airports with Texaco Asphaltic Concrete. Salvage existing pavements serving exceptionally heavy traffic by using them as foundation for a new Asphaltic Concrete wearing surface.

Helpful information on Texaco Asphaltic Concrete and the other plant-mixed types of Asphalt paving is provided in the booklet, "Texaco Asphalt Paving—Plant-mixed Types". You can secure a copy with no obligation by writing our nearest office.



The Texaco Asphaltic Concrete on New Jersey's Route 28 was laid in one or two courses over the existing worn concrete and bituminous pavement.

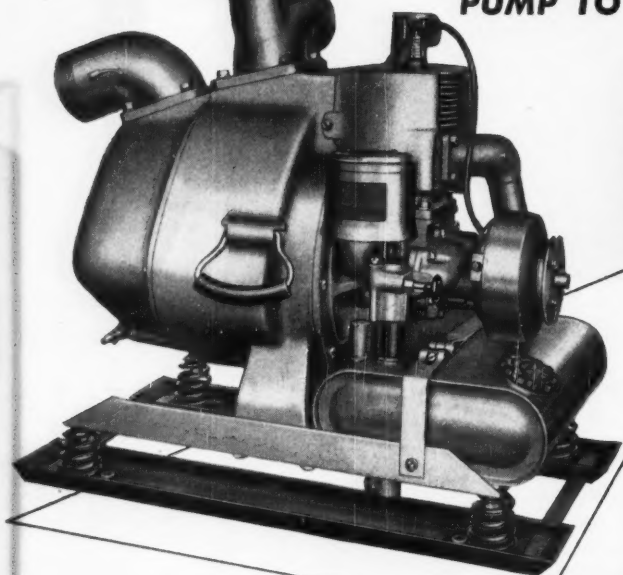


THE TEXAS COMPANY, Asphalt Sales Dept., 135 E. 42nd Street, New York City 17  
Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 2 Philadelphia 2 Richmond 19

# TEXACO ASPHALT

# FOR 3 BIG REASONS

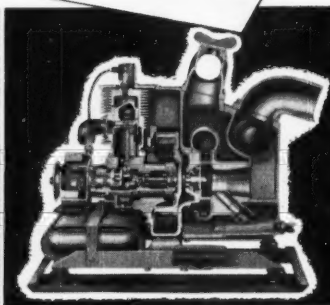
A HOMELITE CARRYABLE PUMP IS THE  
PUMP TO HAVE ON THE JOB



**1. PERFORMANCE.** Just add it all up ... lightweight for easy handling, 15,000 gallons per hour, the fastest self-priming possible, a guaranteed 28 ft. suction lift, automatic seepage control, no trouble with clogging even when handling mud and solids ... that's what you always get from a Homelite carryable gasoline-engine-driven pump that can be set up for operation easily and quickly anywhere.



**3. SERVICE.** To keep Homelite pumps operating continuously, just as the day they were first delivered, a chain of exclusive Homelite service shops extend across the nation. These service stations are completely stocked and staffed by trained Homelite men who are ready to keep your Homelite pumps in top notch condition at all times.



**2. DEPENDABILITY** ... continuous trouble-free performance ... is the result of all the special features that Homelite engineers build into their pumps ... replaceable abrasive-resistant wear plates, a simple five-part sealing device and impeller that require no grease, packing or attention and a non-clogging pump body directly attached with no bearings necessary, to the famous Homelite Gasoline Engine, the result of building over 275,000 gasoline-engine-driven units this past quarter century.

STICK TO THE RULE OF THREE 1. Performance 2. Dependability  
3. Service, and you'll always stick to a Homelite.



## Homelite Corporation

1003 RIVERDALE AVENUE, PORT CHESTER, NEW YORK



# "It stands up under terrific abuse"

## The BELL Prime Mover



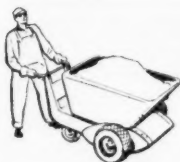
... says Tom O'Rourke, Gen. Supt.,  
Siegfried Construction Company



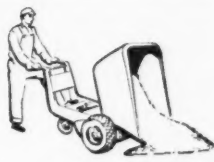
Hoist takes loaded Prime Mover to upper floor.

Combining the features of a giant motorized wheelbarrow, half-ton platform truck, and light-duty grader-scraper, the Bell Prime Mover is tremendously useful in construction work. It will take abuse, too, as this testimonial will show you.

Completely gear-driven... with engine and clutch running in oil... with the entire engine fully enclosed against dirt and moisture, the Prime Mover requires minimum service. Its 3-hp. engine gives eight hours service on 3 gallons of gas.



Bucket holds 1000 pounds of wet or dry material



Mechanically dumped... operates by foot pedal



Climbs 20% grades fully loaded

A PRODUCT OF **BELL** Aircraft CORPORATION

\* PATENTS & T. M. REG. PENDING. COPYRIGHT, 1949

"On the new Veterans Hospital project in Buffalo, N. Y., a fleet of Prime Movers has seen extensive service under typical construction conditions: mud, rough ground, heavy loads, long hours of steady use.

"You should see the beating these machines take when it's muddy. Yesterday we were hauling bagged cement... 9 bags to a load. That's more than 3 times what a man can take in a wheelbarrow on dry ground. This was ankle-deep mud. Same thing with loads of mortar. We take big loads with no trouble at all.

"Another thing. When men are working with wheelbarrows, they get tired. Loads naturally get smaller and smaller. But, when they use our Prime Movers, they get a kick out of taking the biggest loads they can all day long.

"We also use Prime Movers for cleaning up rubbish. We figure it saves us about \$25.00 a day. And this is one of those hidden expense items we never figure high enough.

"One more thing. There are plenty of times when we have to go through doorways when pouring floors. A concrete buggy won't go through a standard door. Our Prime Movers will... and with a capacity load.

"We've got a swell piece of equipment in the Prime Mover. It stands up under terrific abuse."

If you would like to see these machines in operation on one of your jobs, we'll arrange it through a member of our nationwide sales and service organization. For information, please fill in the coupon and mail it today.

### SEND COUPON NOW

Bell Aircraft Corporation  
P. O. Box 1C3, Buffalo 5, N. Y.

Please send me facts on the Bell Prime Mover. Who is the nearest distributor?

Name .....

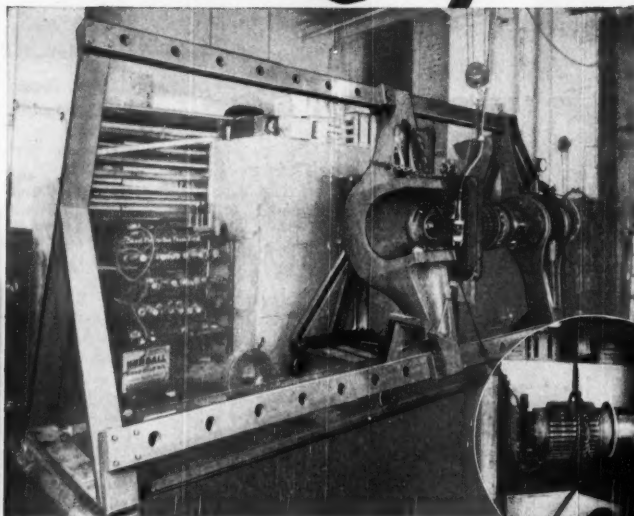
Address .....

Company .....

City, Zone & State .....

**For Fast, Efficient Pressing  
Bending, Forming, Straightening...**

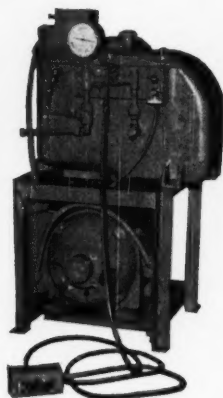
# New Rodgers **FORCING PRESSES**



Rodgers 300 Ton, 75° Inclined, Stationary Forcing Press, one of many in the complete Rodgers line. In the application shown, the press is being used efficiently to press an armature shaft.

## ... with these Features of Construction and Operation

- **SEPARATE PUMPING UNITS**—Choose from individual hand-operated or power-driven pumps to operate any model Rodgers Forcing Press.
- **REMOTE CONTROL OF POWER PUMPS**—Operator can control press from any desired position.
- **REMOVABLE HYDRAULIC CYLINDER**—Cylinder is easily removed from head member to permit servicing or use for other power applications.
- **INDIVIDUAL FRAME UNITS**—Tracks, tension bars, abutment member and head member are all separate units to facilitate handling and erection of press.
- **EXPERTLY ENGINEERED AND CONSTRUCTED**—All units of Rodgers Forcing Presses are made strong, durable and dependable to give years of reliable service.



## ... Separate Power Pump

Select your press operating unit from hand-driven pumps or power-driven pumps. Shown is a Rodgers 2-cylinder Power Pump with remote control.

## ... In these Types and Sizes

Rodgers Versatile Forcing Presses are available in portable or stationary models—horizontal, vertical, 75° or 90° inclined—100 to 600 tons—with hand-operated or power-driven pumps. In this broad selection, you'll find the ideal press to meet your requirements.

*Send for New Catalog...*

For full details and specifications on the complete line of Rodgers Forcing Presses send for Catalog 315.

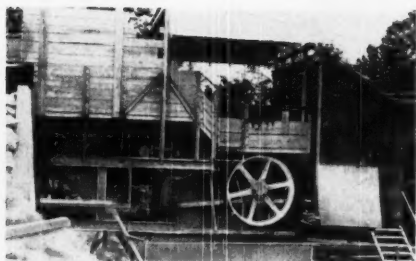


# Rodgers Hydraulic, Inc.

7403 WALKER ST., ST. LOUIS PARK, MINNEAPOLIS 16, MINN.

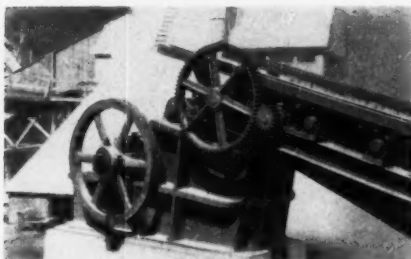
**HYDRAULIC POWER EQUIPMENT**

# Producing Aggregate on the Job with a Traylor "H" Jaw Crusher Cuts Costs ... Keeps Work Moving on Schedule



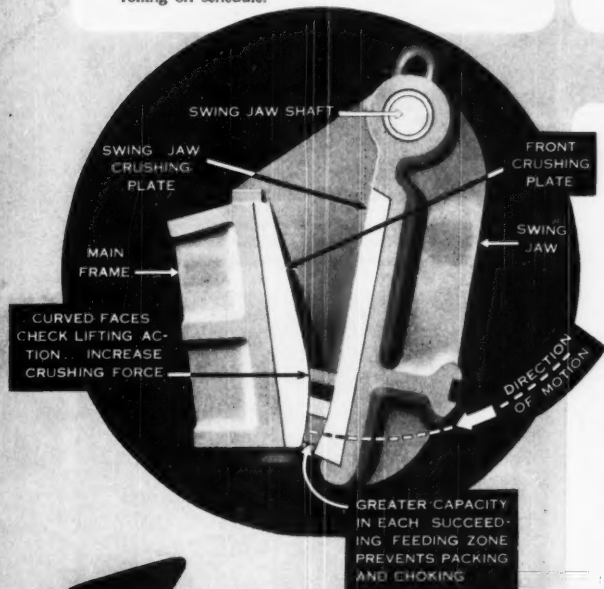
It pays to be in *close* control of your aggregate supply on any big project that must be completed *on time* to show a profit.

With a Traylor "H" Jaw Crusher reducing aggregate on the site, you can rest assured that ample quantities of the *right* size will always be on hand at the *right* time to keep concreting operations rolling on schedule.



A Traylor "H" Crusher . . . with its reinforced welded steel frame . . . is a sturdy efficient machine, yet comparatively light in weight to save considerable expense on transportation, handling and erection costs.

Traylor "H" Jaw Crushers offer a wide range of product sizes from  $\frac{3}{4}$ " to 6" with capacities from 4 to 210 tons per hour.



## Traylor Curved Jaw Plates Save Power . . . Eliminate Crusher Packing and Choking

Power is applied as a *direct* crushing force by the *Curved Jaw Plates* of a Traylor "H" Jaw Crusher. Power is not wasted lifting and churning material. Choking and packing is eliminated by the increased capacity of each succeeding feeding zone in the crushing area. Traylor *Curved Jaw* plates insure continuous, trouble-free production of a finer product amazingly free from slabs and fines . . . at *less cost* per ton. For more complete details on these advanced primary crushers write today for Bulletin #3105.

TRAYLOR ENGINEERING & MANUFACTURING CO.  
129 Mill St., Allentown, Pa.

Sales Offices: New York, N.Y., Chicago, Ill., Los Angeles, Calif.  
Canadian Mfr: Canadian Vickers, Ltd., Montreal, P. Q.

# Traylor

Rotary Kilns      Coolers and Dryers  
Grinding Mills      Crushing Rolls  
Jaw, Reduction and Gyratory Crushers

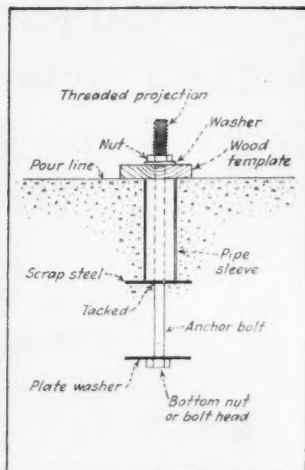


A "TRAYLOR" LEADS TO GREATER PROFITS

# HOW THEY DID IT



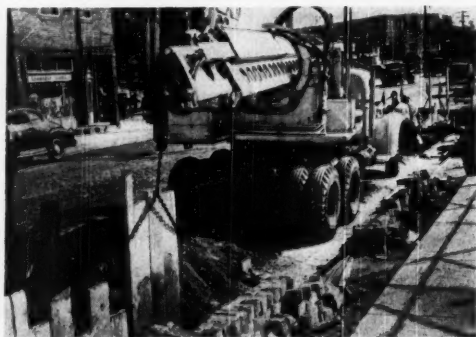
**CITY DUMP FILL** 5 to 20 ft deep is compacted in place for Binghamton (N.Y.) arterial highway base to avoid expensive excavation and replacement. Drawn by A-C HD-19 tractor, Bros Compactor loaded up to 50 tons consolidates fill and locates weak spots which are reinforced by sand and gravel, then re-rolled.



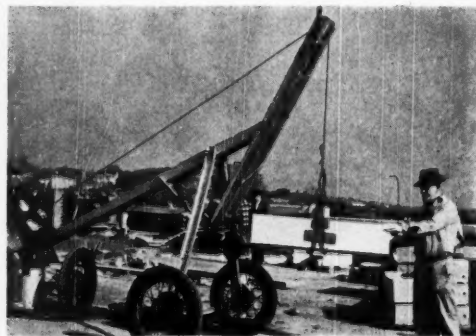
**TO HOLD ANCHOR BOLTS FAST** during concrete pours, tack weld short section of pencil rod or scrap steel to bolt, making allowance for pipe sleeve and template. Tightening top nut holds anchor bolt and sleeve securely to template. It's faster and stronger than tying. (From Ervin L. King, Toboso, Ohio)



**PRE-ASSEMBLED COAL CONVEYOR** is placed in one easy lift by Manitowoc Speedcrane for Worcester County (Mass.) Electric plant addition. Stephens-Adamson conveyor is 86 ft long, weighs 17 tons, and will carry 200 tons per hr from coal supply across street. It is being placed and tied to plant steelwork by United Engineers & Constructors Inc., Philadelphia.

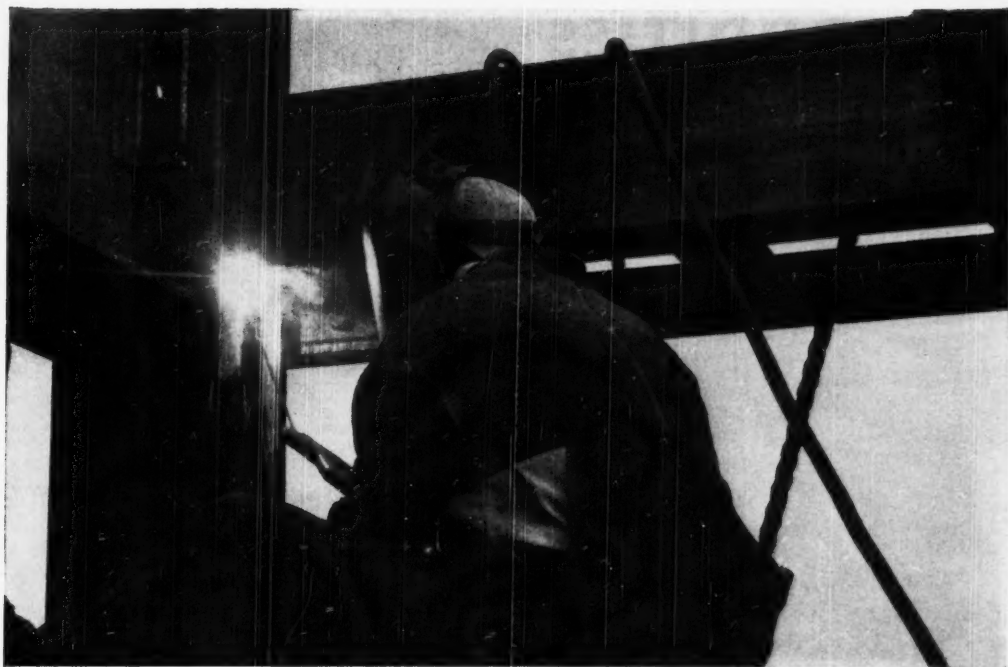


**WITH CHAIN SLING**, Gradall pulls sheeting from electric conduit trench in Cleveland. Sling is hooked to tool holder, which earlier carried exact-width bucket for trench excavation.



**SLICK HOME-MADE RIG** picks up, stacks and sets stonework for Thomas Rome Construction Co., Glendale, Long Island, N.Y., on East New York Bus Garage job. Four rubber-tired auto wheels, several pieces of channel, a counterweight bucket filled with scrap iron (between wheels at left) and a small hand winch—plus the clever idea—were all Rome needed. (Continued on p. 105)





## HEARD THE LATEST ABOUT "FLEETWELD 5"?

**The world's favorite  
electrode is back  
in the limelight again!**

Have you used "Fleetweld 5" lately? . . . or talked to any of the thousands of welders who are using this 21-year-old world's leading electrode?

Do so and you'll discover:

This star performer is still tops for *bead shape, lack of slag interference and penetration . . .* the qualities that have made it the

leader for these many years in class E-6010 welding.

But the stellar attraction today is a *plus value . . .* its

### **New smoothness of operation**

"Fleetweld 5" now has a smoother, *more unidirectional arc*. For every inch of rod, the *arc is confined*, directed right into the joint. *Burn-off is uniform* at all times. The arc is *easier to handle* at all currents and in all positions. Hence, it is easier to get *smooth,*

*uniform beads . . .* every inch of the way. This uniformity gives improved weld metal too!

These new advantages for the veteran of the shielded arc process have been made possible by Lincoln's development of a new "uniformity control" in manufacturing.

Users everywhere are enthusiastic about *every inch, every rod, every shipment* of "Fleetweld 5". Try it and see how it gives *you* the answer to every problem in E-6010 welding!

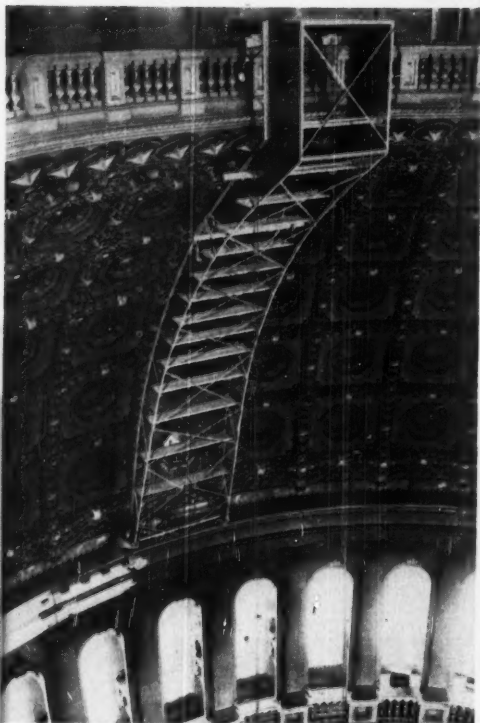
**GET  
THE FACTS**

Send for free Lincoln Welding for Mild Steel. Write  
**THE LINCOLN ELECTRIC COMPANY**  
Dept. 171, Cleveland 1, Ohio



Sales Offices and Field Service Shops in All Principal Cities

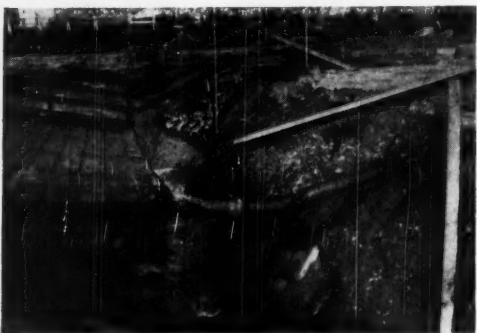
# JOB ODDITIES



**ALUMINUM SCAFFOLD** shaped to inner dome surface is adjusted in place to give safe access for workmen who will wash and paint rotunda in Capitol in Washington. Hanging scaffold is 51 ft high, is supported on balcony and lower ledge.—Wide World Photo



**IMPATIENT**—Contractor couldn't wait for site to be cleared, so builds factory addition around existing dwelling. Plant is for Textile By-Products Corp., at Hudson, N. Y.—Acme Photo.



**TURNABOUT**—Timber bridge at Salem, Ore., for years supported 6-in. cast-iron water main. Then, when bridge abutment washed away, pipe line supported one corner of 30-ft span. Bridge was rebuilt, and cast iron main continued in uninterrupted service.



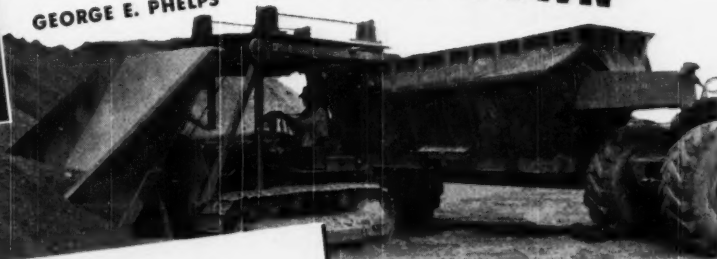
**SUPER HIGHWAY FOR WATER**, not for vehicles, is built on \$2,840,000 Tujunga Wash section of Los Angeles River (Calif.) flood control project. Rex Duo-Drum paver lays 10-in. bottom slab for

70-ft river channel, which will be boxed in by walls 12 in. thick. Channel is designed to handle 30,000 cfs for quick runoff of flash floods. A. Teichert & Sons Sacramento, is contractor.



# "PRODUCTION UP... COSTS DOWN"

GEORGE E. PHELPS



PHelps-WUNDERLICH-JAMES  
P.O. BOX 100  
ENGLEWOOD, COLORADO  
(a joint corporation venture)

December 1, 1949

John Austin, Incorporated  
707 First National Bank Building  
Denver 2, Colorado

ATTENTION: Mr. John Austin

Dear Sir:

We have had one of your Austin 6-C Overshot Loaders in operation on our Cherry Creek Dam Job for the past three months and have found it to be a very efficient machine. Its jobs have been many and in each case it has proven to be a rugged, high-production loader.

We use this machine principally in loading blanket material and sand into Euclid bottom-dump wagons. Our production records are far beyond any expectations as we found that this machine would average 300 yards in a normal working hour, and at times reached a production rate of 350 cubic yards an hour, this operation being in blanket material and sand.

Maintenance costs are found to be at a minimum, with fuel consumption being about the same as for normal dosing operations. The fact that this loader does its own loading, cleaning, sweeping, etc., and is a one-man operation, has taken a large slice from our former loading costs. The Austin Overshot Loader has a definite place in our future operations.

We whole-heartedly recommend the Austin Overshot Loader for use in any operation similar to those in which it has proven itself on Cherry Creek Dam.

Very truly yours,

PHelps-WUNDERLICH-JAMES

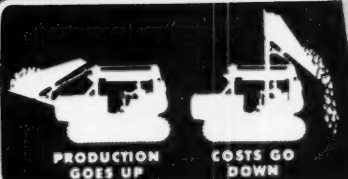
*Geo. E. Phelps*  
by  
Geo. E. Phelps

CEP:phl

**300 CUBIC YARDS  
PER HOUR**

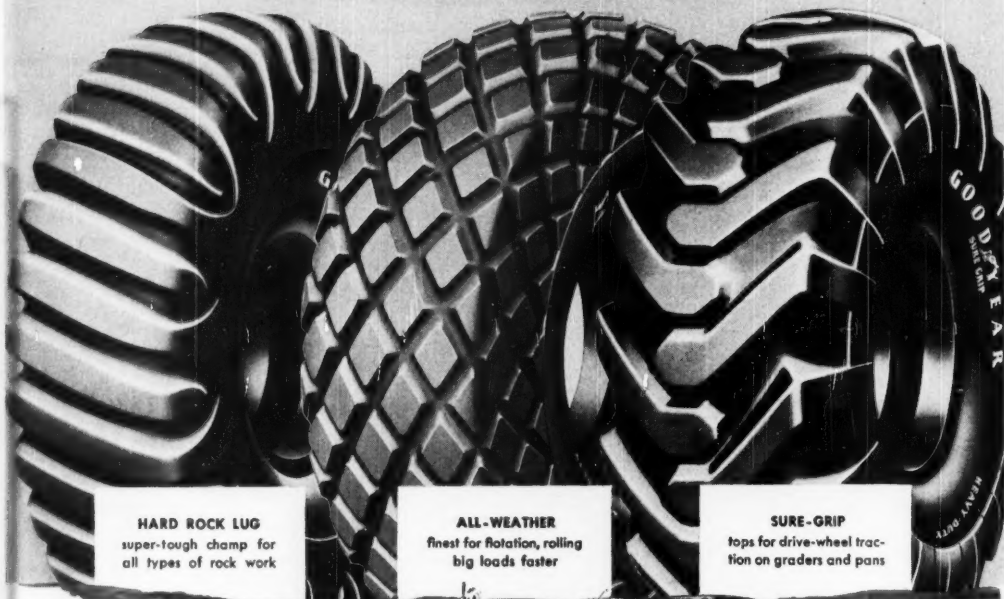
NOTE: Rated Production  
on this 1 1/2 yd. unit is  
225 yds. per hour

WRITE FOR FOLDER



**John Austin, Inc.**  
Dept. CM  
**DENVER 2, COLORADO**

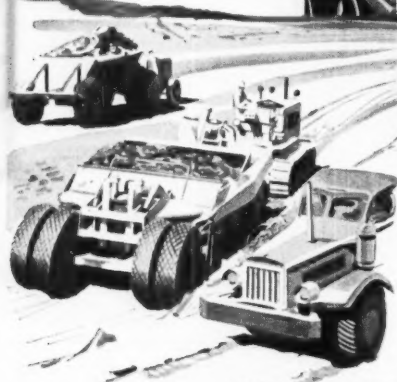
# Three ways to cut tire costs



**HARD ROCK LUG**  
super-tough champ for  
all types of rock work

**ALL-WEATHER**  
finest for flotation, rolling  
big loads faster

**SURE-GRIP**  
tops for drive-wheel trac-  
tion on graders and pans



**T**HE experience of construction men proves that one of these great Goodyear tires is *your* best bet to step up schedules, cut down costs. *Every* Goodyear work tire is rated tops in its class because each is specially engineered in body and tread to meet the needs of a particular type of job. Remember, to cut your tire costs—move dirt faster—always **BUY and SPECIFY Goodyear—it pays!**

*We think you'll like "THE GREATEST STORY EVER TOLD"—Every Sunday—ABC Network*

# GOOD YEAR

All-Weather, Sure-Grip—T.M.'s The Goodyear Tire & Rubber Company

**MORE TONS ARE HAULED ON GOODYEAR TIRES THAN ON ANY OTHER KIND**



### Careful With Those Pension Plans!

AS CONSTRUCTION WAGE RATES approach an economic ceiling difficult to pierce by bargaining, construction labor shows signs of switching to pension and welfare demands. To a harassed contractors' labor committee such demands might appear innocent and simple, at the moment preferable to new wage increases. But watch them, fellows, for they are full of potential dynamite that might blow any construction firm into bankruptcy.

Because of inherent characteristics of the industry, construction pensions would be most difficult to administer. Differing from manufacturing industries, we have no set plants turning out consistent products and manned by a stable working force. Instead, we have roving employers who take jobs in many states, picking up their labor locally. We have itinerant workmen who move from employer to employer, and from location to location. Difficulties in holding NLRB elections in construction, which led to their abandonment, are trifling in comparison with those involved in setting up a workable pension plan.

Financing of a pension plan must be either funded or on a pay-as-you-go basis. Because of the high average age of construction employees, cost of funding would be almost prohibitive—far beyond the financial ability of most contractors. The pay-as-you-go plan at first glance seems workable, but actually it is unsound for the employee, for funds available fluctuate with the construction business cycle.

The fiasco of the coal miners' fund under impact of the short work week is a good example. In construction, as in coal mining, the danger lies in the pensioner's restlessness once he has tasted full retirement benefits. You can bet that labor will come up with demands for continuing pension payments regardless of the individual employer's economic and work status.

Unions will claim that the only way to handle construction pensions is through union-controlled and administered funds. Such funds would be collected from every employer hiring

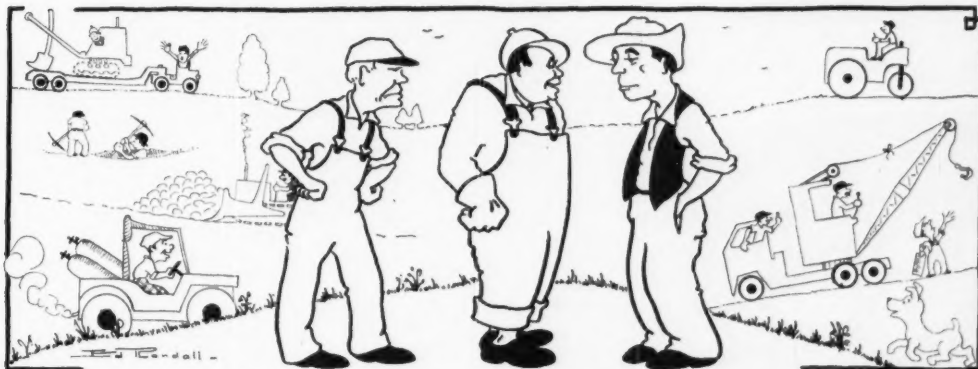
the union's members. But that's not the answer. In the first place, few unions have demonstrated their ability properly to take care of the huge funds involved. Second, since construction is a flexible, moving industry and not stationary, its roving workers would fare poorly under such a plan. Lastly, too small a proportion of employees could possibly benefit.

Federal administration through a greatly extended social security plan is, of course, a possibility, but again an undesirable one. Construction cannot expect to be singled out for special benefits. A federal plan would be possible only if all pensions were handled by the government. Eventually the funds required would be so enormous that capital investment would suffer, much to the detriment of our economic machine. It would simply lead to more and more inflation, with resulting loss in security for the pensioner. The possibilities of eventual hand-outs in a wrecked economy are ominous.

We warn contractor associations, bargaining committees and individual firms to resist all worker pension and welfare demands until the subject has been much more thoroughly studied. Perhaps a sound, workable plan can be devised, but so far it hasn't been discovered.

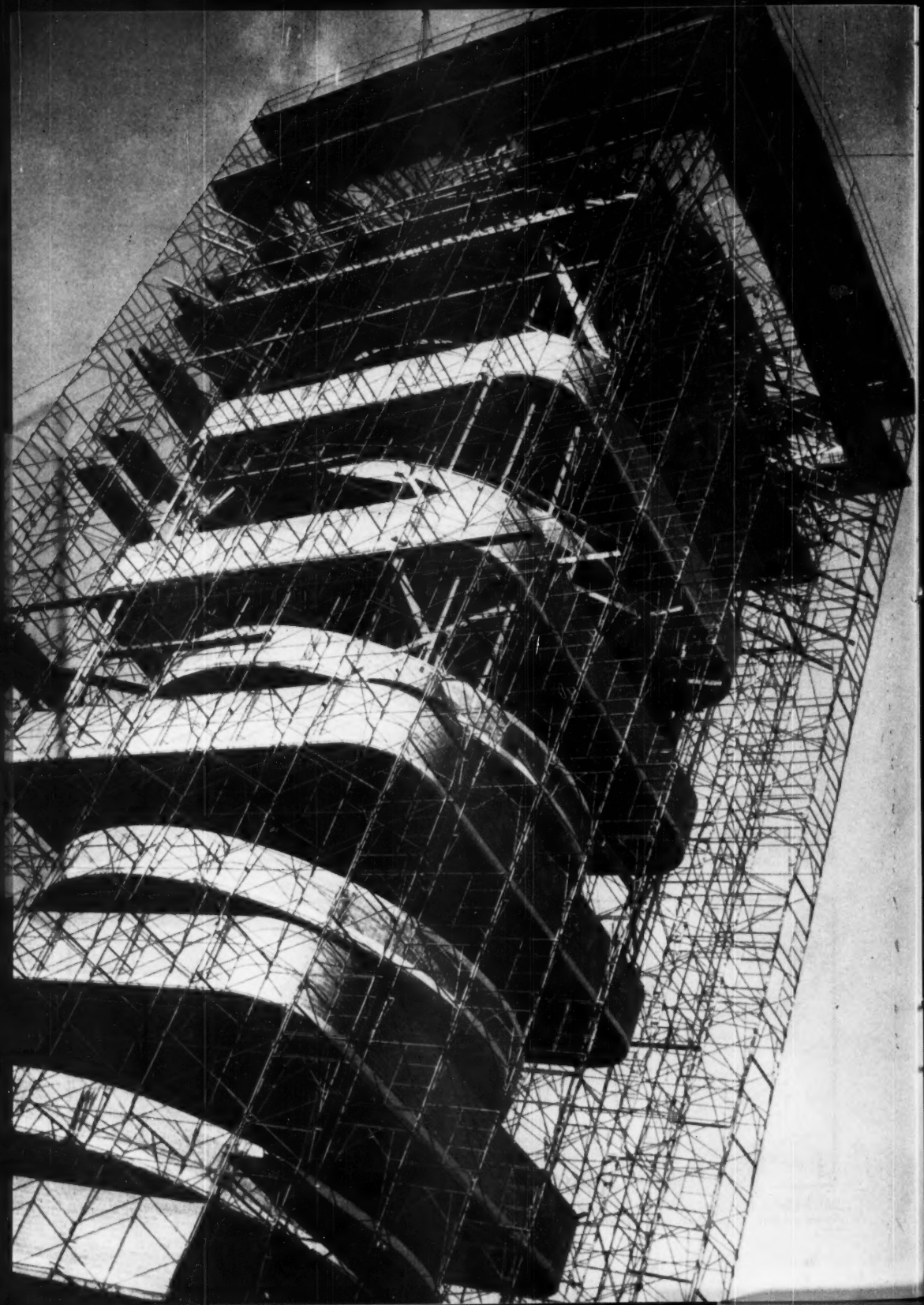
*Rich*

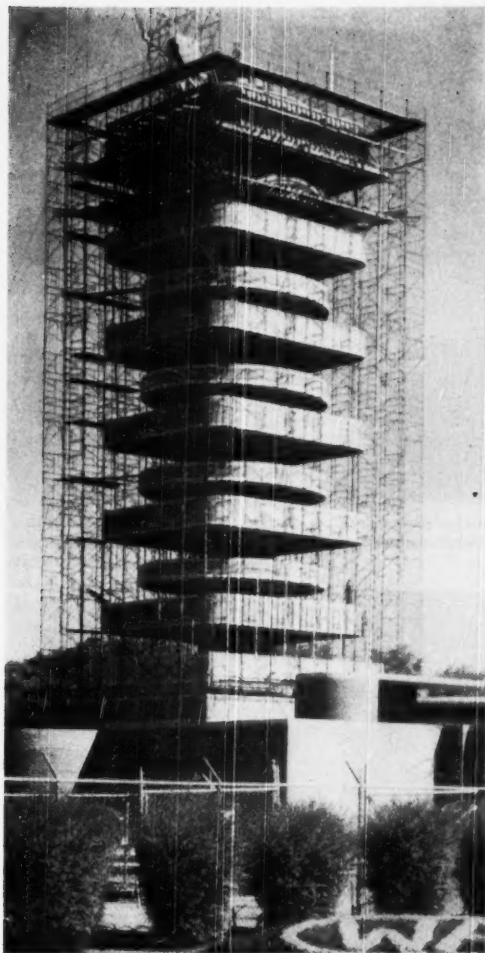
**ON THE COVER**—A battery of Ingersoll-Rand wagon drills, with I-R bits and rods, sinks blast holes for L. G. DeFelice & Sons, North Haven, Conn., on their section of the Pennsylvania Turnpike's eastern extension near King of Prussia. The drills are preparing 170,000 yd of decomposed granite for removal in 12- and 16-ft lifts from a 300,000-cu yd cut that will be 50 ft deep. Air is furnished by five I-R compressors, totaling 1,945 cfm, through a receiver and 8-in. main.



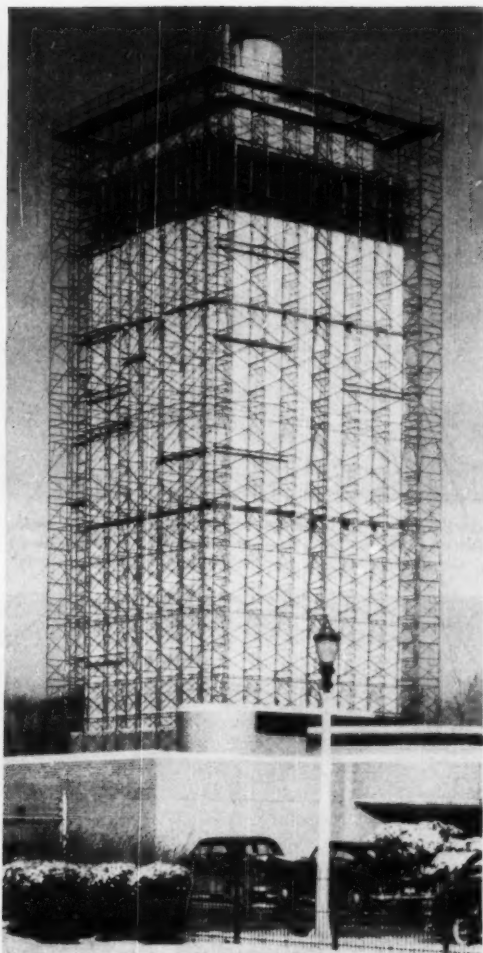
**SPIKE SEZ:** You job stewards are the key to our good labor relations, 'cause we never let all those small squawks grow into serious griev-

ances. The same harmonious goodwill should exist on every organized construction project.





Miles of tubular scaffolds hold . . .



Acres of temporary sheeting so . . .

## Winter Weather Doesn't Stop This Job

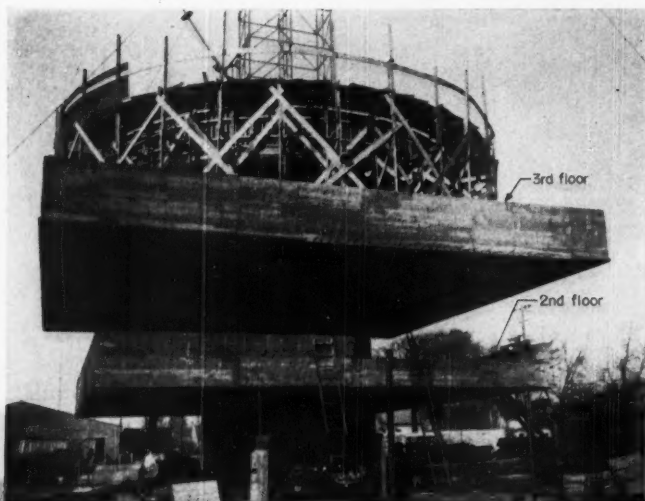
FACED WITH THE PROBLEMS of carrying on construction through two winters, contractors on a spectacular 15-story research laboratory at Racine, Wis., arrived at an

early solution. They simply enclosed the entire building with 290,000 sq ft of temporary sheeting, installed some steam unit heaters and strung electric lights to keep the job out-of-the-weather, warm and light.

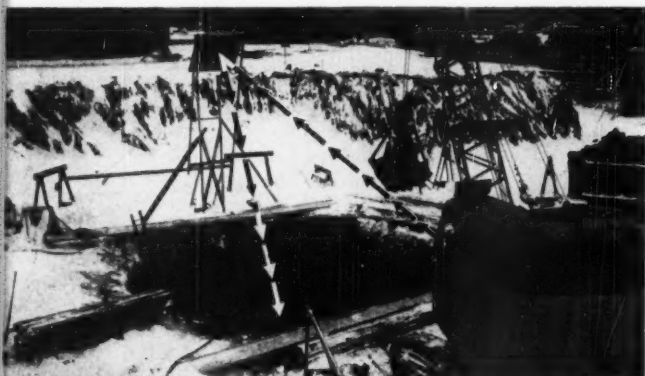
The sheeting—Cemesto Board—was mounted on the inside of about \$21,000 worth of Ezybilt tubular scaffolds that completely surrounded the 154-ft high building. That's a lot of scaffolding, but the structure couldn't have been built any other

way. There was no interior access to the floors during construction, so all material had to be taken up on the outside and carried in from the scaffolding. Also, most of the building's exterior wall will be double glass (15,000 sq ft of plate glass on the inside; 17½ mi of Corning 2 1/16-in. OD glass tubing, 2¼ in. c-c and calked with Koroseal, running horizontally around the outside). With complete scaffolding in place, glass erection crews can work simultaneously on

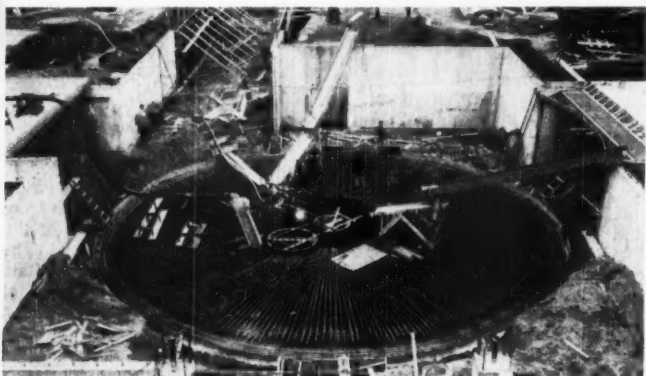
JOHNSON WAX RESEARCH LABORATORY is 154 ft high (15 stories); has 40-ft.-sq floors alternating with 38-ft circular mezzanines. Scaffolds surround it for 18 months—12 for concrete floor pours, & for exterior double glass wall and interior finish.



**SOME CANTILEVERS!**—All floors are cantilevered out from single central reinforced concrete core. Second floor is standard 40x40 ft, third floor has added 3-ft balcony surrounding it. Curved forms above it are for third floor mezzanine.



**8x8-FT MIRROR** lets operator of Byers  $\frac{1}{2}$ -yd clamshell look into excavation for tower foundation. It's only way he could see bottom of tapered hole 50 ft deep.



**BIGGEST NON-STOP POUR** is readied for 24-hr job of placing 300 cu yd of concrete in upper section of foundation. Trucks and Pumpcrete will deliver mix.

the exterior walls for all 15 floors.

The tower-like research building is for S. C. Johnson & Son Inc., makers of Johnson's wax. Its revolutionary and bold design in reinforced concrete—all floors are cantilevered out from a central core—was created by architect Frank Lloyd Wright. Main floors are 40 ft sq, alternating with 38-ft dia circular mezzanines. The only access will be by elevator and fire stairs in the central core, where utilities and other services will be located.

The 2,000-ton tower is supported on a single cone-shaped reinforced concrete foundation extending 50 ft into stiff clay. The bottom 20 ft is solid concrete 13 ft in dia. It then mushrooms out to 60 ft at ground level to carry the central stem from which the floors branch.

A Byers  $\frac{1}{2}$ -yd machine excavated the foundation, starting as a shovel and converted to clamshell as the hole deepened. Three men, with Ingersoll-Rand clay spades supplied by Sullivan and LeRoi 105 - cfm compressors, trimmed the sides of the pit and aided clamshell digging. To protect them, the deep hole was braced by channel rings and vertical 4x4 in. maple heart sheathing carried down with the excavation.

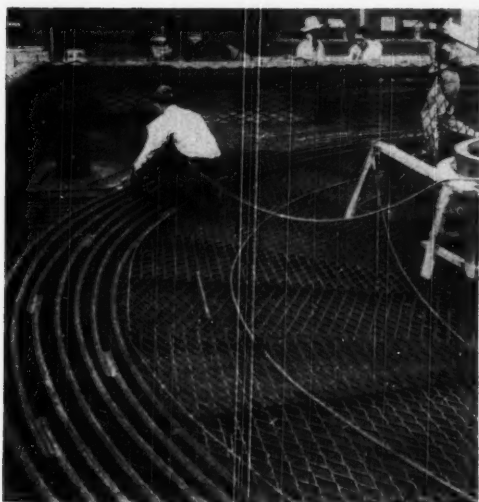
#### Difficult Floor Construction

Construction of the heavy cantilever floors was difficult. It took seven weeks to build the first one, but after workmen learned proper timing of their operations, a floor was put up every three weeks (excluding interior finish and glass walls). Each floor was poured on forms supported from the floor below by adjustable steel pipe jacks ordinarily used to correct sagging floors. A steel plate was welded to the top of each jack to carry the form joists. Two sets of forms for main floors and two for mezzanines allowed ample time for concrete curing before removal of forms and their supports.

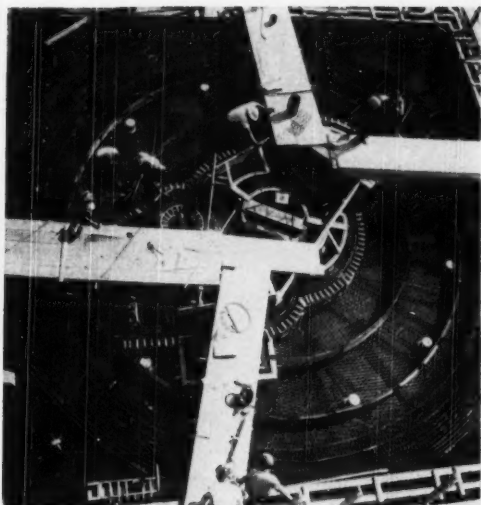
The building's central core is a cluster of six circular and elliptical shafts. These have such sharp curvatures that  $\frac{1}{4}$ -in. plywood was the heaviest that could be bent to shape for forms without cracking. It was backed by vertical 2x4 wales on 4-in. centers.

Both stem and floors are heavily reinforced. No bars smaller than  $1\frac{1}{4}$ -in. rounds were used in the main reinforcing rings, and often these were spaced as close as  $3\frac{1}{4}$  in. c-c in both top and bottom lay-

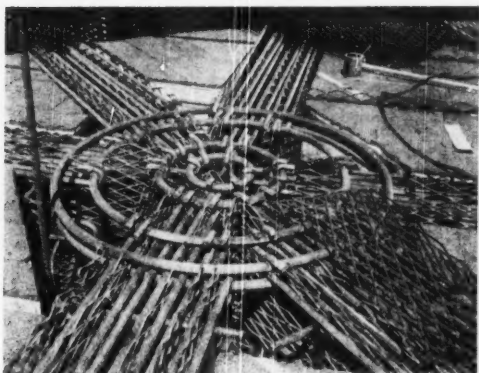




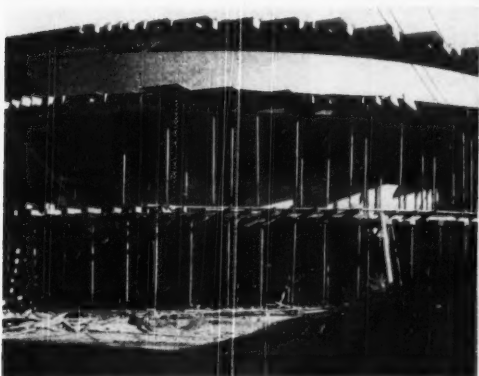
**ALL REINFORCING**—1 1/4-in. rounds for stress rings, and precut Steelcrete expanded metal sheets—is welded at all joints. Four Hobart 300-amp arc welders supply current.



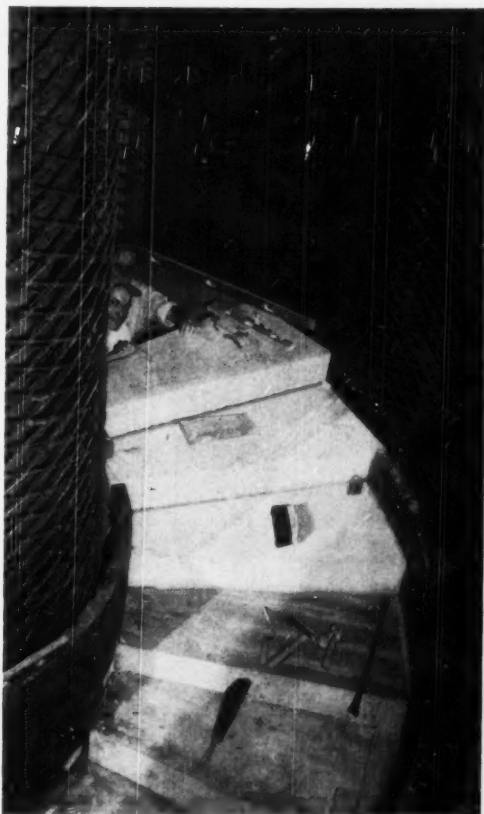
**CENTRAL CORE** of building is cluster of six circular and kidney-shaped shafts poured along with floors. They will house elevator, fire stairs, toilets, utility lines, heating ducts.



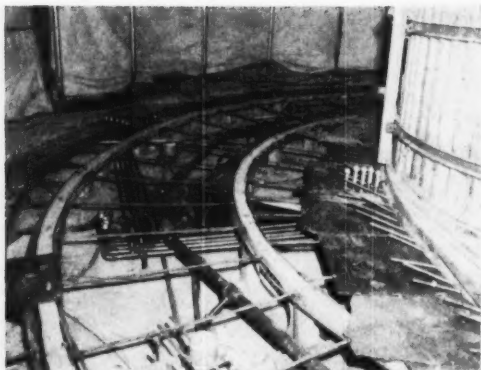
**HOW'D YOU LIKE TO POUR** through this labyrinth? Job used 504 tons of bars, 542 tons of Steelcrete to reinforce 6,960 yd.



**CLOSELY SPACED** adjustable pipe-jacks support floor forms and prevent deflection of long cantilever spans.



**CIRCULAR STAIRS** have solid stone steps and masonry walls, all built monolithically. This is in 3-story wing of tower.



UTILITIES ARE CARRIED in two-slab cellular floor whose top slab is poured directly on steel sheets that are supported by circular concrete ribs and by framework of reinforcing bars.



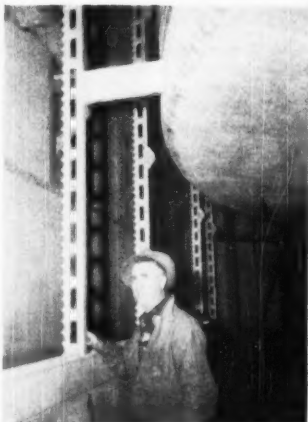
CLOSE MASONRY TOLERANCES call for considerable cutting. Clipper 15-in. saw slices through one of 388,000 3x9x2 1/4-in. bricks that are incorporated in reinforced concrete structures.



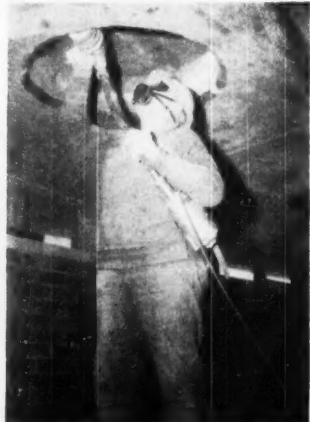
PEA-GRAVEL CONCRETE (a 7-sack mix, 6-in. slump, 5,000-psi strength, Pozzolite added for workability) is vigorously vibrated to prevent honeycomb in heavily-reinforced floors.



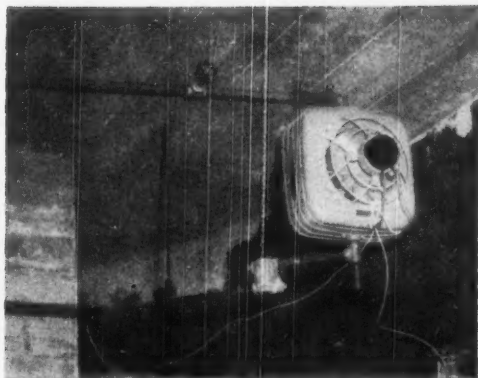
CHICAGO BOOM is rigged on 187-ft 2-shaft Archer materials tower powered by 45-hp Clyde hoist. One shaft is for concrete, other for men. It's only access to floors.



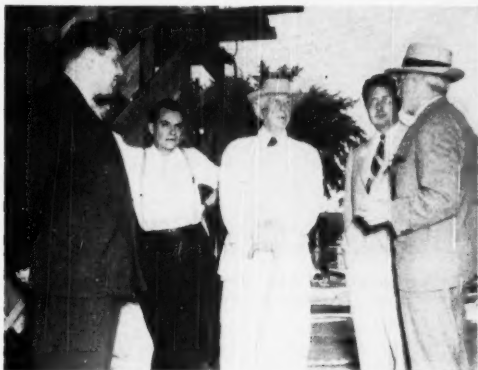
ALUMINUM STANCHIONS will carry double glass wall—17 1/2 mi. of 2 1/16-in. Corning glass tubing on outside face, 15,000 sq ft of 1/4-in. plate glass inside.



WHEN CONCRETE SURFACES aren't smooth enough they are trued with Berg electric surfacing machine. Operator wears goggles and dust mask for safety.



**PLENTY OF HEAT** for workmen comes from ceiling-hung Modine steam-heating units throughout tower and flanking wings. Project started in 1947, will finish in September.



**FRANK LLOYD WRIGHT** (with cane), creator of unique building, talks to: J. V. Steinle, S. C. Johnson & Son Inc.; J. Halama, president; Johnson's J. J. Babbs; contractor Ben Wiltschek.



**WORKING IN ENCLOSED**, heated and lighted area, worker adds brick trim to central core in comparative comfort despite snow and sub-zero weather outside.

ers. So much reinforcing was needed that the use of bars exclusively was out of the question. Instead, pre-cut Steelcrete (a heavy expanded metal mesh) was put in in great quantities. Both bars and mesh were field welded at all joints. In all, it took 504 tons of bars and 542 tons of Steelcrete to reinforce the 6,960 yd of concrete in the project.

Concrete placement presented no serious problems other than that of pouring it through the great concentrations of reinforcing; plus the fact that a floor (82 cu yd) and its supporting section of central core had to be poured in one operation.

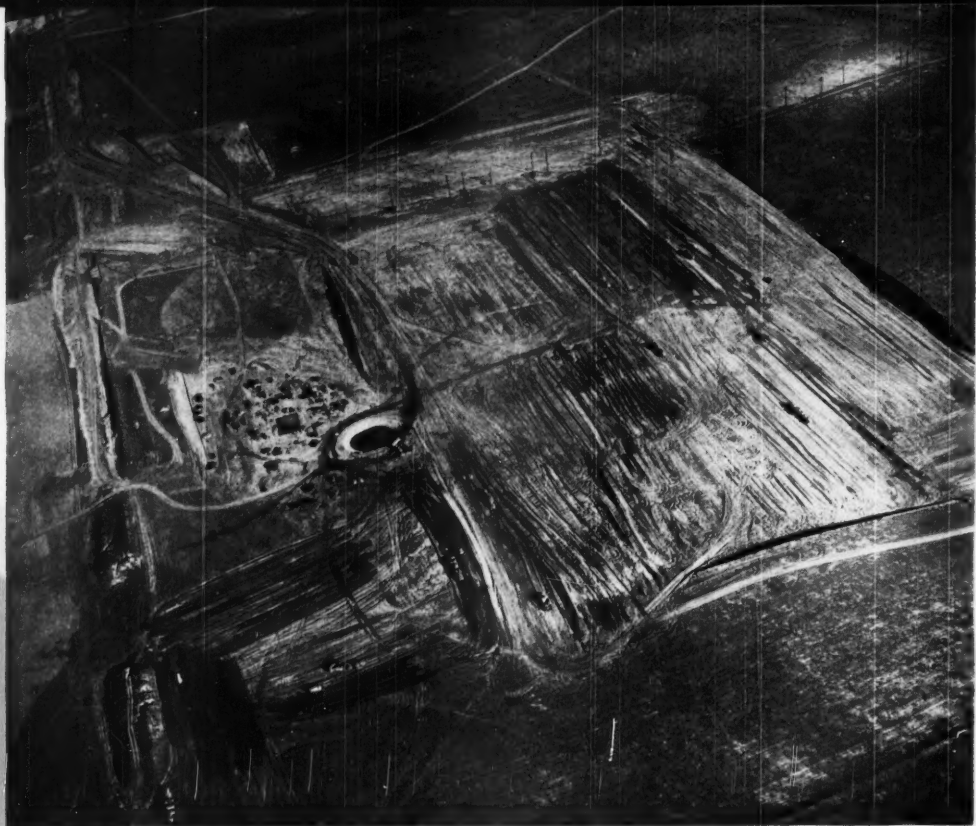
General contractor for the work is Wiltschek & Nelson Inc., Racine. George Nelson is construction superintendent, assisted by Jacob Stocker. B. E. Wiltschek is general manager.

## Job-Made Muck Bucket

**HAVE YOU EVER** had to excavate a lot of real gooey muck on a job—too thin to be removed by usual methods and too heavy to be pumped? The H. W. Alward Co., contractors from Bernardsville, N.J., got around it by using an extra 10-ft section of 60-in. Armco corrugated metal pipe left over from a previous sewer job.

They welded on a metal bottom, reinforced the ends, rigged a pail handle on the open end, fastened a wire rope sling and attached it to the load line of a crane. With this outfit they moved 15,000 yd of muck in a minimum of time—with an extra piece of pipe and a little construction ingenuity.





THREE CONTRACTORS on joint venture for Los Angeles Airport split 12 million yd job three ways, each section prosecuted as separate contract. This air view, taken in early days of project, shows divisions: (1) left of pond; (2) upper right; and (3) lower right.

## Three-Way-Split Ups Output On L.A. Airport Earthwork

By JIM JOSEPH, Los Angeles, Calif.

ORGANIZATION of a 12,000,000-cu yd earthmoving job for maximum equipment use is speeding early completion of the \$3,336,149 project at the Los Angeles Airport. In a joint venture, N. M. Ball Sons (Berkeley, Calif.), Harms Bros. (Sacramento), and H. Earl Parker, Inc. (Marysville), divided the 2½-sq mi area about equally between them. Then each contractor brought in his own equipment and crews, and even set up separate work camps and maintenance bases.

To add more equipment to the job, each of the prime contractors hired earthmoving subcontractors: Lewis & Queen (Fresno) by Harms Bros.; Louis Biasotti & Son (Stockton) by Parker; Baker Bros. (Chico) and Gunner Corp. (Pasadena) by Ball.

This concentration of contractors brought in more than 100 pieces of earthmoving equipment for fast work. Maximum production has reached 2,344,000 cu yd in one month, with all contractors working around the clock.

The entire job is a cut-and-fill proposition with no borrow required. Cuts run as deep as 50 ft and fills as high as 30 ft. There is as little as 45,000 cu yd and as much as 625,000 cu yd in a cut. Fills vary from 25,000 to 375,000 yd.

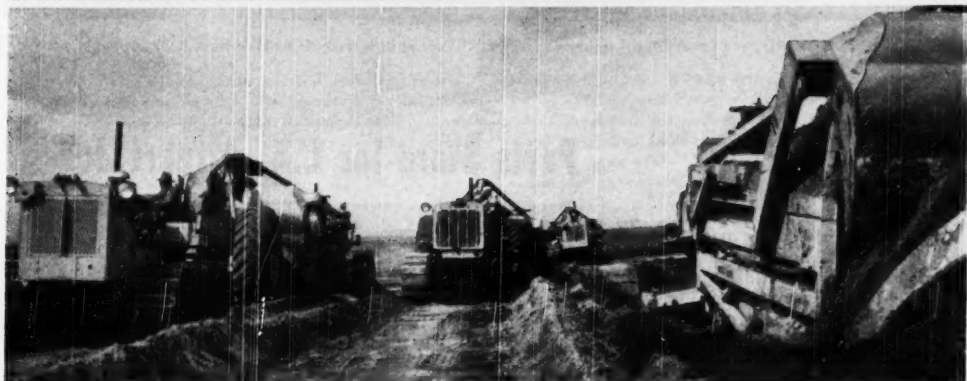
Water is required in large quantities to aid in compaction and also to reduce dust. When 100 pieces of equipment operate at full speed, dust becomes an extreme hazard for construction machines. Besides that, the fill work is an extension of the existing airport and dust must be kept at a minimum so as not to interfere with plane traffic.

To provide water, three wells were drilled, one for each contracting firm. Water is pumped from these wells to sumps and thence to sprinkler trucks.

The soil varies from pure beach sand to clay, and the contractors found most of the cuts are drifted sand dunes. Water was needed to raise the moisture content of this

(Continued on page 58)

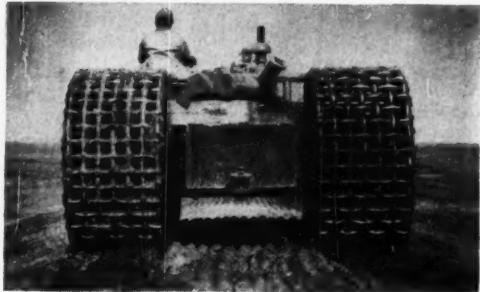
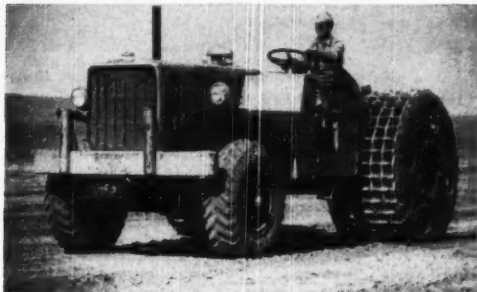




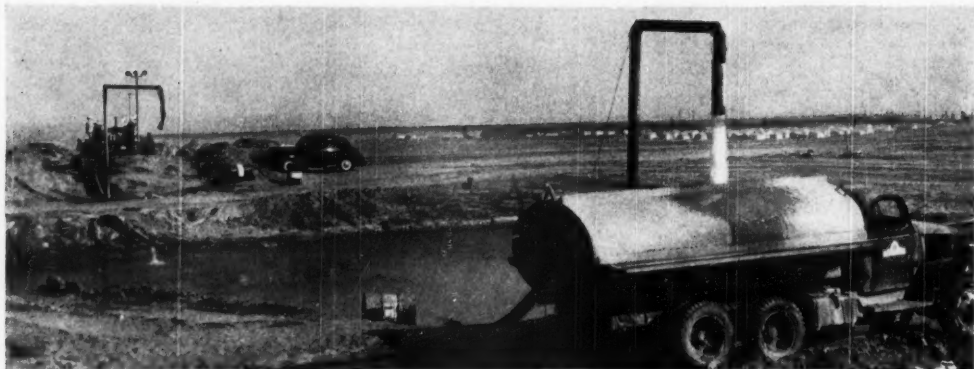
**BUNCHED TRACTOR-SCRAPER FLEETS** turn out remarkable yardages in easily handled sandy soil. The three contractors and their subs put more than 100 earthmoving units on job; maximum monthly output so far is 2 1/3 million yd.



**AIRPORT PROJECT**, all cut-and-fill without borrow, covers 2 1/2 sq mi and involves 12 million yd of earthmoving. Cuts run 50 ft deep, fills 25 ft high.



**NEW TYPE COMPACTOR** is Hyster Grid Roller, with rear grill wheels replacing regular rear wheels and tires of Caterpillar DW 10 tractor. Grid rollers supplemented conventional rubber-tired and sheepfoot rollers.



**WATER FOR DUST CONTROL** and for additional moisture in fill material comes from reservoir supplied by well. Big pumps at pond load sprinkler trucks in fast time.

(Continued from page 56)

sand to optimum for best compaction. During one day, as much as 2,250,000 gal has been used.

This soil is ideally suited to the relatively new grid roller, made by Hyster Co., Portland, Ore., under patents held by Gardner-Byrne Construction Co. of Los Angeles. Two 5-ft wheels, mounted on a Caterpillar DW-10 tractor, carry a compacting surface of woven open-mesh grid made up of interlaced 1½-in. bars. Openings between bars are 3½ in. square.

Grids are cleaned by an internal mesh-cleaning device with tapered studs projecting from a small diameter drum. This drum idles with the grid roller, a stud penetrating each mesh opening with every revolution.

Gross weight of standard equipment is 1½ tons per ft of width (14,600 lb for two 32-in. wide grid wheels). When loaded with ballast of water, concrete blocks, scrap metal and sand, weight is 39,500 lb. This gives a maximum contact pressure of 1,640 psi. Not all the contractors use grid rollers. Twelve rubber-tired compactors and four sheepsfoot rollers were also used.

This project is a City of Los Angeles municipal operation. M. Tommy Tucker, airport engineer, and Otis T. Calhoun, assistant airport engineer, worked with CAA district airport engineer H. K. Friedland in laying out the expansion. The work is financed by the city and the federal government, with 54% from federal sources.

For the joint contracting venture, Stanley Ball is project manager, William Dumas is assistant project manager and Earl Boswell is general superintendent.

## Parts Store for L.A. Airport Job



**PARTS SUPPLY ROOM** set up by Shephard Tractor & Equipment Co., Caterpillar distributors in Los Angeles area, supplies more than seven contractors on L.A. airport earth-fill work. Here Virgil Hayes checks an order.



**FACILITY IS LOCATED** in same building as offices for joint venture holding L.A. airport fill contract. Pickup truck speeds parts to various shop areas on job.

**BECAUSE OF CONCENTRATION** of more than 100 pieces of earth-moving equipment on the Los Angeles Airport fill work, Shephard Tractor & Equipment Co. found it profitable to set up a parts supply department at the work site. Although the job is held by a joint venture, each of the three prime contractors involved and at least four of their subcontractors oper-

ate their own equipment. Individual maintenance and repair setups were established.

In the six months the supply depot was in operation, sales totaled \$85,635.

The sales room carried items in bins marked with identifying numbers, and a complete Kardex system was provided for ready reference.



## Construction Labor Notes . . .

By JIM CONNOLLY

THIS MAGAZINE has consistently and exclusively devoted its editorial coverage to construction operations and the mechanization of the construction industry. Starting with this issue we round out our coverage of construction technique, equipment and material phases of construction operations by adding labor relations as a regular feature.

Union-management relations in construction are of ever-

increasing importance. We hope to include in this new feature both sides of the labor picture, covering NLRB decisions, court rulings, jurisdictional and inter-union disputes, news, trends and everything else that leads toward ideal boss and worker conditions for the betterment of construction.

Comments, criticism and news of labor relations will be welcome.—EDITOR

### Pipe Line Contractors and Operating Engineers Get Together

The International Union of Operating Engineers recently entered into a nation-wide contract with the main U.S. pipe-line contractors which might well set a precedent for similar action elsewhere. The three points of the agreement covering: (1) standard rates, (2) use of apprentices and (3) no strikes, will certainly do much to save time, temper and expense for both union and management.

(1) Wage rates will be comparable to those paid for highway work in each state or locality.

(2) An apprentice (or apprentices) may be employed at his proper rate for starting, stopping and operating pumps, mixers, compressors, welding machines and other small equipment. "—in no case will there be any limitation upon the number of such machines placed under the care and operation of any one or more men."

(3) During the term of the contract on the work covered there

shall be no slowdown, stoppage or strike, and any violation will be reported to the International by the employer. Disputes will be referred to a committee of two (one representing each side) who will choose a third within 48 hr or, failing that, will apply to the National Association of Arbitration to appoint the third man. A majority decision is binding on both parties under this agreement. Meanwhile the work continues!

Best of all, this is a voluntary agreement and not one handed down from above. Let's see more of them as the need arises.

### AFL—AGC—Denham All Want No Elections

Union shop elections presently required by the Taft-Hartley Act should be dispensed with in the construction industry. That's the general opinion among officials of the AGC, AFL National Building Trades Dept, other contractor associations which are parties to the National Joint Board for the Settlement of Jurisdictional Disputes, and Robert M. Denham, general counsel for NLRB.

Mr. Denham suggests a three-

point plan to replace the election clause: "When the NLRB receives a charge of an unfair labor practice against a contractor or union based on the application of a union shop contract that has not been authorized by an election under the Taft-Hartley Act, the Board should:

(1) Deem the union shop authorization requirements of Section



ROBERT M. DENHAM

(A) (3) and 9 (E) to have been met, despite the fact that no election has been held, until such time as the Board sets up election machinery in the industry.

(2) Consider that the 30 day provision of Section 8 (A) (3) has been met if the worker has been

(Continued on page 96)



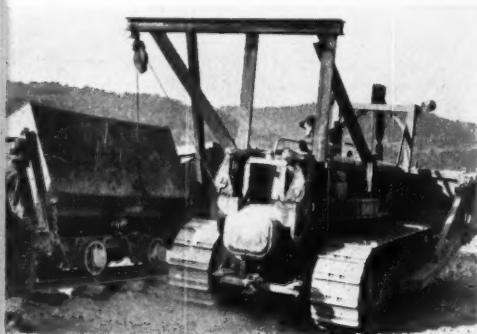
## Tractor Boom Dumps Tunnel Cars

DOUBLE DUTY is being performed by a Caterpillar tractor on the tunnel job of Frazier-Davis Co. at Grahamsville, N. Y. as a part of the extensive project to bring more much-needed water to New York City.

By a steel frame and a cable from the power take-off, the tractor dumps four muck cars successively at the same level as the portal, and then clears the dumping area while the engine returns for another four-car train.



TRACTOR DUMPS first car with boom and hook . . .

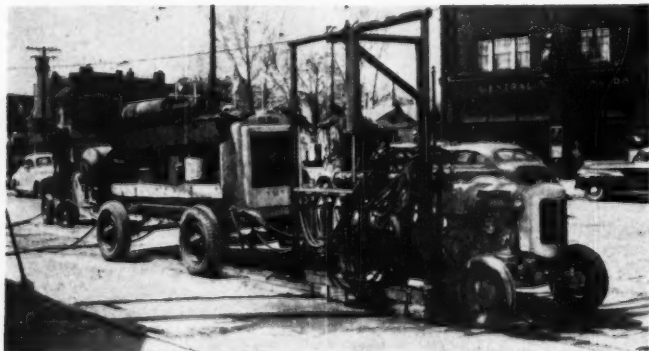


. . . THEN MOVES along quickly and dumps remaining muck cars . . .



. . . AND CLEANS UP ROCK as train returns for next load.

## New Speedy Pavement Cutter



CENTAUR TRACTOR pulls compressor with six drills, followed by broaching machine.

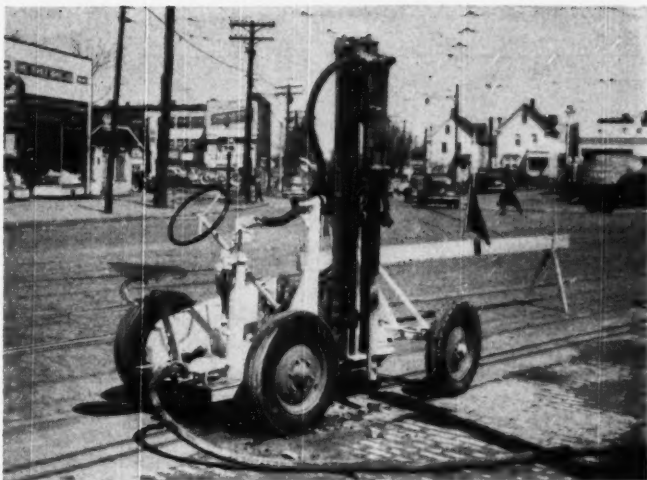
A DRILLING AND BROACHING METHOD for cutting through various kinds of pavements is proving its worth in Cleveland. Six drills are mounted on 1-ft centers on the side of a Centaur tractor which pulls its own compressor and broaching machine. The drills are controlled and fed by one common valve. Drills are spaced 1 ft, but the unit is moved to cut 3 or 4 holes per ft, as deep as 24 in.

The broaching machine follows with its short feed and a 4-in. Cleveland drifter. A  $\frac{3}{4}$ x3 $\frac{1}{2}$ -in. broaching bar breaks out the web between the holes and is not affected by mesh or reinforcing up



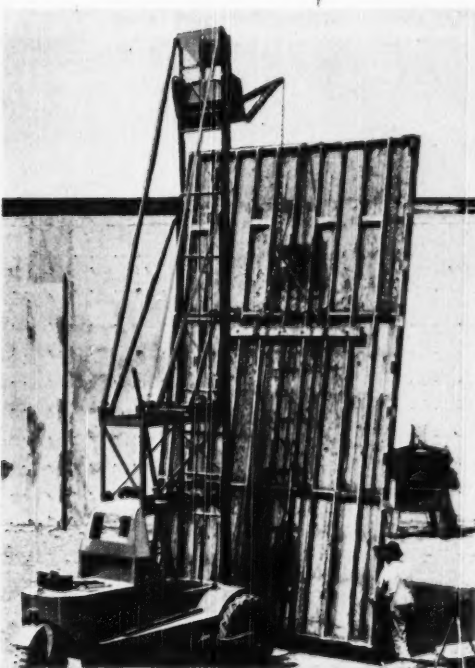
to  $\frac{1}{2}$  in. in concrete pavements.

This procedure makes a perfectly straight cut without disturbing the parent concrete, which is the greatest fault of "skull-cracking" or drophammer methods. A 600 cfm LeRoi compressor supplies both parts of the rig which can cut up to 500 lin ft of concrete per day. Developed and successfully used by Cleveland Contractors Equipment Co., the rig uses four operators and speeds up the process tremendously over sawing and drophammer methods or hand-held tools.

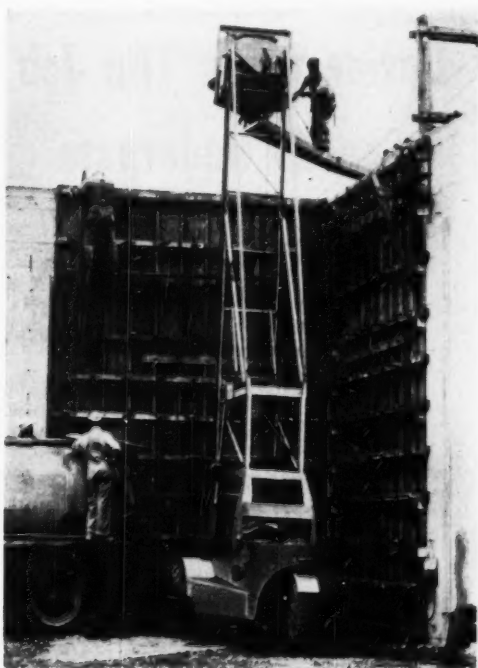


→  
**BROACHING BAR** knocks out web between holes drilled 3 or 4 to the ft as needed. Rig cuts up to 500 lin ft per day in straight line with no disturbance of parent concrete. Here it cuts bricks and concrete base slab.

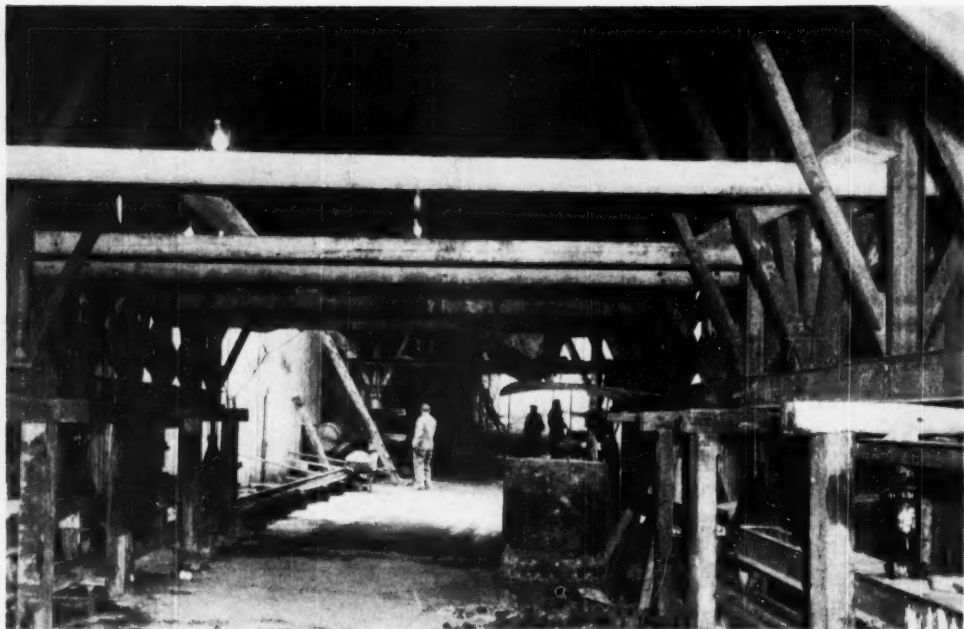
## Scoop Becomes Jack of All Trades



**MOVING AND PLACING FORMS**, placing pre-tied reinforcing mats, hoisting and pouring concrete and hoisting roofing materials were among the many jobs keeping this Wagnermobile Model C scoop busy for Shields Construction Co. of Eugene, Ore., on a



furniture warehouse constructed for C. P. Tillman Co. By using a swivel concrete hopper attachment, rig was set up in a corner and poured both sides without moving. It made a mighty mobile machine all around.



**MONDAY**—Tracks are strung out, roof and wall jacks loosened, and 75-ft platform rolled to next bay. Traveler shown is in southbound tube; its twin runs in adjacent passage. Underpass was designed with one center bench, or walkway, so center wall kicks

over from one side of walk to other every 100 ft. Wings on inner edge of travelers hang down and are swung up into this space on alternate sides as needed. One more move and traveler will reach west portal.

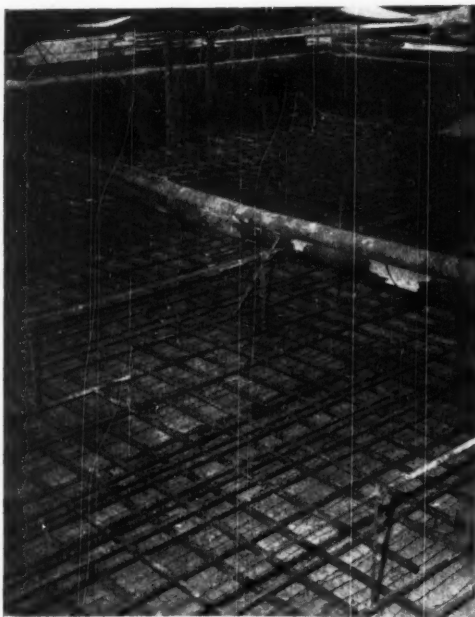
## Upside-Down Tile Job Speeds Underpass

BY SUPPORTING the glazed ceramic ceiling face down, as specified by Borough President of Manhattan engineers, and casting it directly with the roof slab on a collapsible traveling platform, contractors will be able to turn over the completed Battery Underpass in lower Manhattan in a much shorter time than if ordinary tile-laying and roof-form methods had been used.

Bugs were gradually ironed out of the operation until now a smooth-running cycle is in motion which adds 60 lin ft of ceiling and roof slab over the entire four lanes every week.

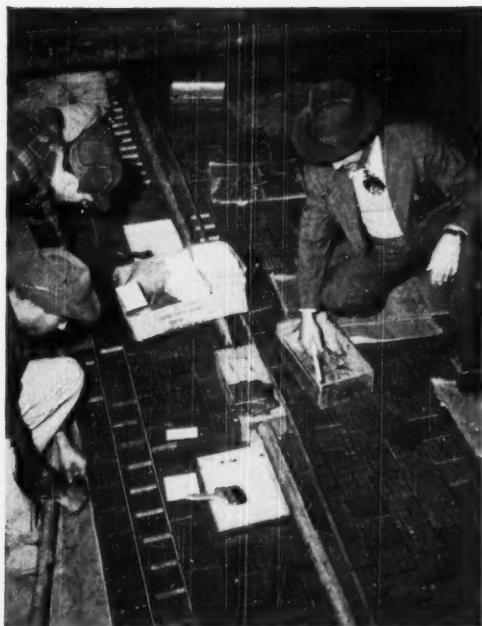
When completed, the underpass will lie in the shape of a large U under Battery Park, the Staten Island Ferry approach and several intersections, connecting New York City's east and west side highways.

The job is supervised by the engineers under Robert F. Wagner, Jr., President of the Borough of Manhattan. Anthony Donago is chief engineer and John T. Carroll, resident engineer. General contractor is National Structures Corp. of New York City, whose president, Joe Meltzer, is the spark behind all the work. Ralph Taylor and Ed Fitzpatrick are chief construction and design engineers, respectively, and Max Weiner is job superintendent for tile subcontractor, Atlas Tile & Marble Works Inc.

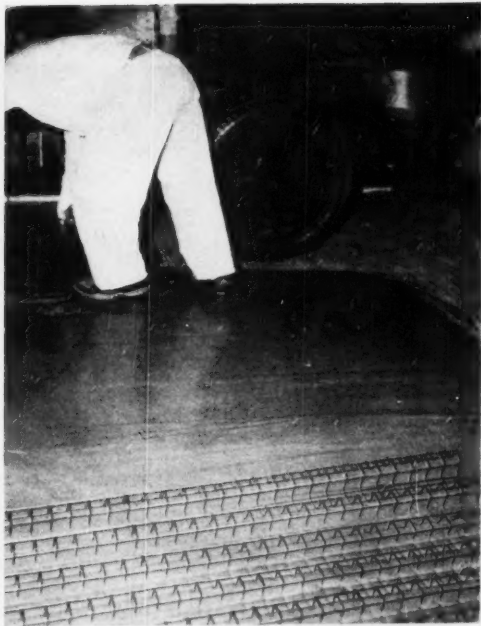


**WEDNESDAY  
AND  
THURSDAY**

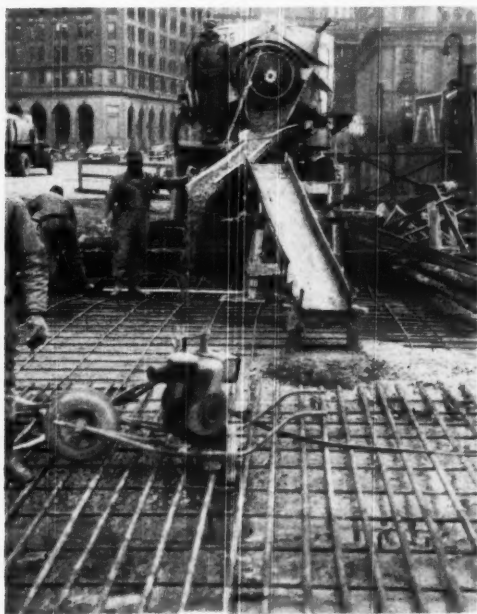
Rest of electrical conduit is installed. Upper reinforcing steel rests on vertical rods welded to bottom layer. Undisturbed conduits shown will pass through slightly depressed envelope in roof slab.



**TUESDAY**—With flush ceiling boxes in place, soluble Kraft paper is stapled to deck, soluble paste brushed on, and tile laid upside down in staggered rows. String maintains sure longitudinal space on long curved runs. Next, fine sand is swept into spaces and



1 in. of grout laid over tile. Each 4 1/4-in. square tile has 25 dovetail buttons for adherence. Sheets of 2x2-in. wire mesh are laid down with right-angle bends every 2 in.; half in pour, half out. Grout cover prevents steel from cracking tiles



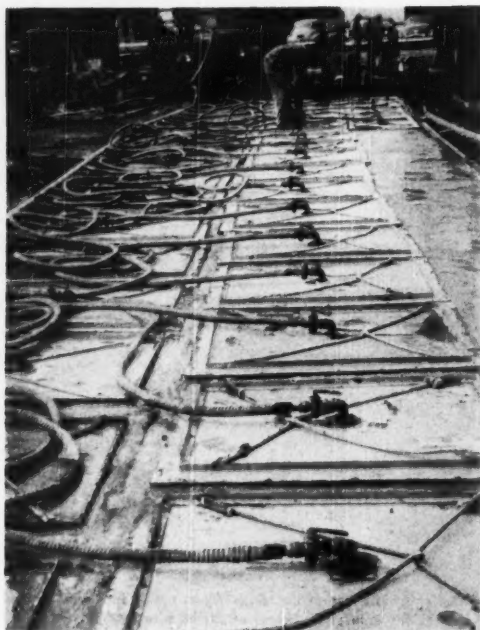
**FRIDAY**—Concrete pour is final act in weekly cycle. Minimum thickness is 2 ft 6 in., increasing where traffic is carried overhead. Note extra heavy reinforcing in section above center kick-over wall. As soon as pour is smoothed out . . .



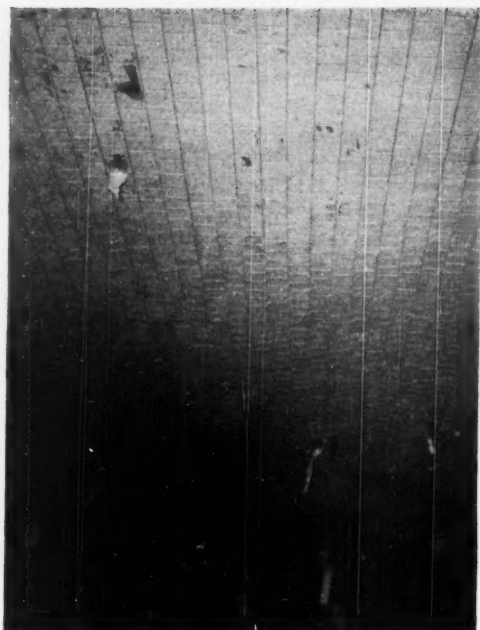
**VACUUM PADS** are applied to remove excess water and hasten set, then large salamanders are started under pour which is allowed to set over weekend. Sidewalls and roof are waterproofed with five layers of cotton fabric and asphalt moppings.

(Continued on next page)

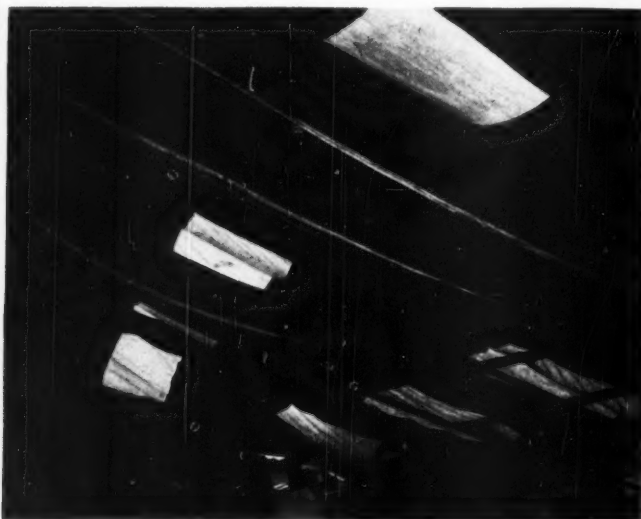
## BATTERY UNDERPASS... Continued



WHEN FIRST PADS of Vacuum Concrete Inc. of Philadelphia have done their job, they are jumped to new spot and Whiteman cement finisher is readied for finishing touches. Since job started, not one cycle and pour has failed to be completed on schedule.



**MONDAY**—Traveler is moved to next bay, revealing super tile job. Hoses make short work of soluble paper. Sand falls out of joints which are then pointed with neat cement. All bothersome, slow, overhead tile application is avoided.

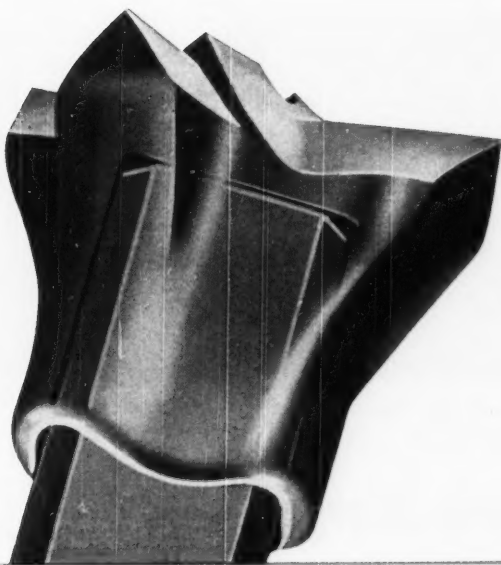


TO ASSURE continuance of work during inclement weather, pipe sleeves were set in side and center walls to hold other piping for framework over which huge tarps are draped. When this darkened work area too much and artificial lighting was not too satisfactory, isinglass windows were put in canvas to correct situation.



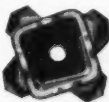
CLOSE-UP SHOWS center wall kicking over from one to other side of center bench, and satisfactory tile work even where side wings were brought into play.





## New TIMKEN® one-use rock bit with new "Spirallock" union offers 7 great advantages

**1 STAYS ON MORE DEPENDABLY.** New "Spirallock" union—formed by square socket that spirals slightly as it recedes—has proved superior under actual on-the-job conditions.



**2 EASIER TO GET ON AND OFF.** A few blows of the drill and it's on. A few blows of a hammer and it's off. Smooth socket contours assure easy detachability.

**3 MADE OF TIMKEN ELECTRIC FURNACE STEEL.** Fast cutting. Long lasting. Uniform quality.

**4 NON-RIFLING.** The "X" cutting edge prevents rifling in any ground.

**5 CROWNED CHISEL PILOT.** Makes for easier starting and "collaring"—faster penetration.

**6 SIMPLIFIES PREPARATION OF DRILL STEELS.** Due to "Spirallock" union, steels last much longer, are easier to prepare and recondition. Square steel ends simplify fitting. They may be machined or forged.

**7 ANY STEELS CAN BE USED.** Existing drill steels of any size and section can be adapted quickly and easily.

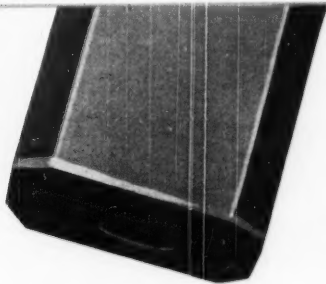
THE superiority of the new Timken® one-use "Spirallock" rock bit has been proved under actual on-the-job conditions. It offers advantages no other one-use bit can equal.

This revolutionary bit is designed for jobs where bit reconditioning is impractical or undesirable. It is available in a variety of types and sizes.

To get the best bit for your job, use our Rock Bit Engineering Service. Timken and Timken alone offers *all three* types of bits—the famous threaded multi-use and threaded carbide insert bits as well as the new one-use "Spirallock" bit. And Timken has been solving rock bit problems for 17 years.

Write to The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

\*PATENT PENDING



# TIMKEN

TRADE MARK REG. U. S. PAT. OFF.

**YOUR BEST BET FOR THE BEST BIT  
... FOR EVERY JOB**



**1** Timken threaded multi-use rock bit.



**2** Timken threaded carbide insert rock bit.



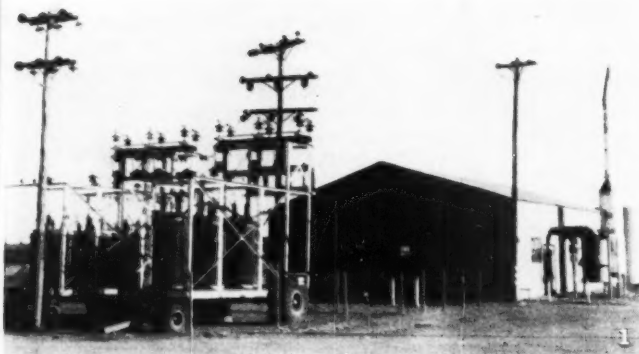
**3** Timken one-use "Spirallock" rock bit.



Oversize dippers on 6-yd. machines add 1½ yd. to each bite to help . . .

## Big Electric Shovels Load Big Yardages at Ft. Randall

TIME WAS when 11½ million yd. of excavation and 6 million of embankment would be a whale of a big job. But at Ft. Randall Dam, those quantities were just "Initial Earthwork." To put it in its proper perspective in relation to the whole dam project (60 million yd. of excavation; half as much embankment) Western Contracting Corp. completed the work in one construction season. Then they turned around and handled 8½ and 4½ million yd. for Stage II during the next season. The work wasn't easy, for much of the material had to be drilled and shot. But plenty of high-powered equipment headed by big electric shov-

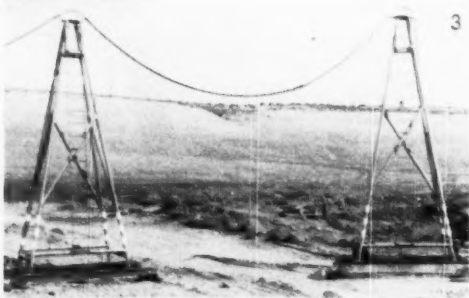
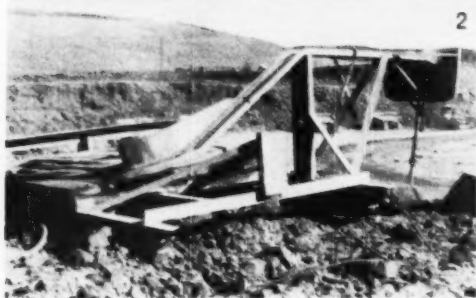


### Power for Electric Shovels

1...CONTRACTOR'S 1,000-kw diesel-generator augments commercial utility power, floating on end of long highline to boost voltage and flatten load peaks. From generating plant and mobile substation, power goes to . . .

2...CABLE SLED that drops feeder to shovel. Sled stores excess cable; has arm that cantilevers over pit rim to keep feeder from tearing itself against rocky face of cut. Between plant and sled . . .

3...SADDLE-TOPPED TOWERS support power cable from regular pole line that extends into general excavation area. Skid towers eliminate many pole shifts; keep high-voltage cable safely clear of passing traffic.





**ELECTRIC SHOVEL** loads Mack truck. Contractor reeved spliced endless  $\frac{3}{8}$ -in. steel cable loop between tandem rear wheels of hauling unit to kick rocks out from between dual tires, lengthening their life.



**DIPPER TRIP**, not powerful enough to unlatch oversize bucket, was beefed up by adding another lever assembly at end of dipper handle. Later, this was replaced by more-powerful commercial trip.

els netted the Sioux City construction firm up to 75,000 bank-yd. daily.

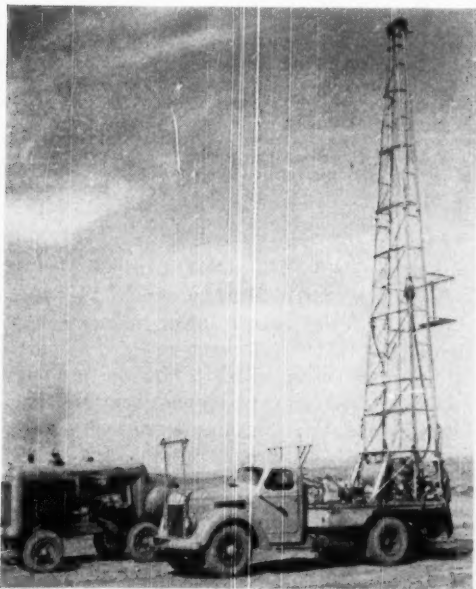
The Omaha District, Corps of Engineers, is building Ft. Randall Dam on the Missouri River just above the Nebraska-South Dakota border. One of the largest units in the Pick-Sloan plan for Missouri Basin development, the dam will be 10,000 ft. long, 160 ft. high, 1,600 ft. wide at the base.

Western's earthwork was all on the left side of the river (where outlet works and spillway will be located). Time limits on both their contracts extended over into the following year. However, Western be-

lieves in equipping a job so as to finish in good working weather and thus avoid excessive overhead and reduced efficiency in bad. In line with this philosophy, they brought in machinery worth \$3,500,000 and finished each job in one season, winding up in the fall.

Key excavating units were four electric shovels—three 6-yd. Marion 151 M's; one 6 $\frac{1}{2}$ -yd. Bucyrus-Erie 170 B. Even these big rigs weren't large enough for Western's taste, so they replaced the dippers with Esco cast-welded ones that upped the capacities 1 $\frac{1}{2}$  yd. Handling 7 $\frac{1}{2}$  and 8 yd. per bite, the shovels loaded

(Continued on page 70)



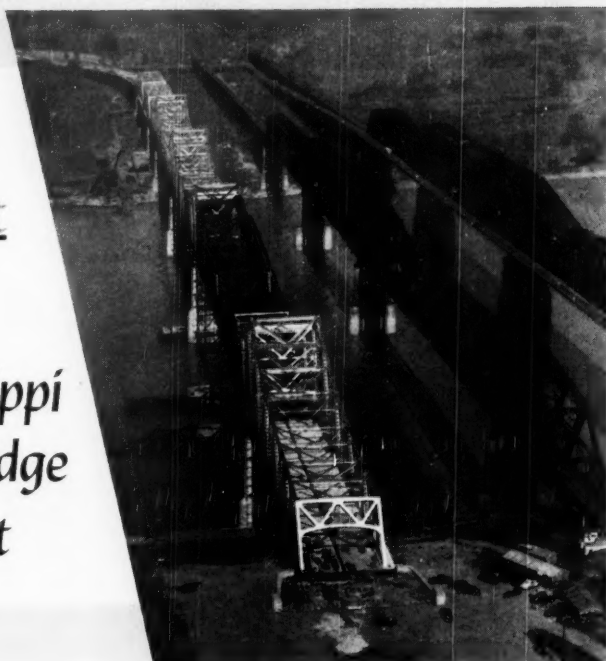
**ROTARY DRILL** sinks 25 to 30 4-in. x 22-ft. blast holes per shift to prepare for shovels. Ingersoll-Rand 500-cfm. compressor supplies air to Failing drill rig to blow chips from hole. Contractor finds this more efficient than usual water flushing.



**ON GLACIAL DRIFT OVERBURDEN**, Bucyrus-Erie 29T churn drill puts down 9-in. blast holes on 20-ft. centers. Drilling rate, (1 to 4 ft. per hr.) and bit life vary greatly due to layers of conglomerated quartzite boulders.

# Gulf Products and Fine Service

keep  
equipment  
rolling  
on Mississippi  
River Bridge  
Project



The recently completed Memphis & Arkansas Bridge, shown above left in the process of construction, is over 5,200 feet long, carries a 4-lane roadway, and cost \$13,566,000. The main bridge steel superstructure was erected by Harris Structural Steel Co., Inc., New York, N. Y., whose equipment delivered top performance with Gulf lubricants and fuels. This contractor had an outstanding safety record on this big job—not a single loss of life, and 69,000 man-hours of operation before the first lost-time injury.

**A**NOTHER big construction project where equipment made an outstanding record of dependable performance with the help of Gulf quality products and services.

Here are a few of the reasons why so many leading contractors prefer the products identified by the familiar orange disc: Gulf lubricants provide an extra margin of protection. Gulf fuels

help to insure full power. Gulf supplies expert engineering counsel and prompt delivery service. Result: fewer delays, lower maintenance costs, bigger profits!

Let us discuss with you how our products and services can help you on your next job. They are available to you through more than 1200 warehouses. Write, wire, or phone today.



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Located in principal cities and towns throughout  
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OVER SHARP ROCKS, MUD, GRAVEL, SAND...OUT AND OVER THE HIGHWAYS

**GENERALS**

do all jobs

*better, safer, faster*  
at Lower Cost



**THE  
GENERAL  
L.C.M.**

**THE  
GENERAL  
H.C.T.**

For more profit in every on and off-the-road job depend on this dual-purpose General Truck Tire team. The General L.C.M. for most work off-the-road. The General H.C.T. for most work on-the-road.

**THE GENERAL TIRE & RUBBER CO.**  
AKRON, OHIO



The General L. C. M.—broad tread legs resist cutting, prevent slipping and sliding in tough off-the-road work.



The General H. C. T.—over-rolling ribs of rubber for safe traction in high speed over-the-road hauling.



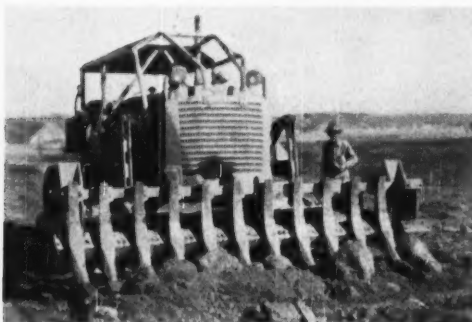
General Tractor Grader Tire with maximum traction from high, long-wearing, self-cleaning tread ribs. No side slip.



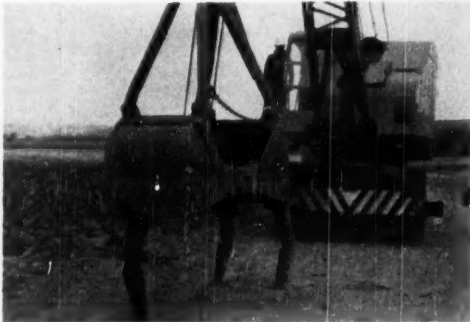
**SELF-CENTERING SNATCH BAR** on HD-19 hooks Tournapull to assist in full loading on Initial Earthwork contract where 13 scrapers moved dirt on short hauls, augmenting shovels and trucks.



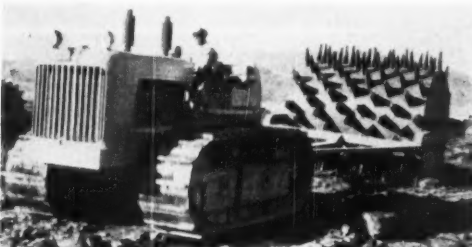
**WHY USE TWO** when one will do? So Western puts blade on front and rake on rear of A-C HD-19 on dam embankment. Rig spreads windrowed fill; scarifies packed top of each lift to assure good bond.



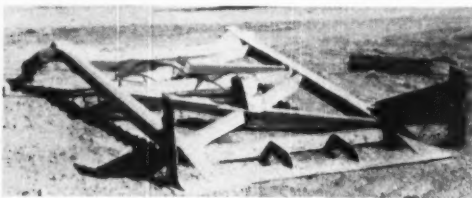
**JOB-BUILT RAKE** combs each lift to remove boulders. Mongrel rig has Caterpillar angledoxer yoke and frame, Fleco shanks, Escoripper boots and shovel-point teeth.



**RIPPER TEETH** bolted to clamshell convert bucket to rock grab. This cherry picker lifts large boulders from dam fill, loads them into Euclid rear dump that hauls them to riprap stockpile.



**SPIKED ROLLER** chops shale chunks in experimental section of embankment. Unit weighs 25 tons; is drawn by TD-24.



**DAMP DIRT** builds up in truck bodies, increasing dead weight and cutting pay load. This bed cleaner, shaped to rear-dump contour, is poked into raised truck body to slide along bed and quickly clean out packed dirt. It is carried on front of D7 tractor when in use.

(Continued from page 67)

15- to 20-yd. hauling units in two or three swings.

About one-third of the excavation was chalk; the rest was glacial drift (sand, silt, clay, and gravel, with some boulders) and a layer of shale. A lot of the material required blasting for efficient handling. To open it up for the shovels, 4-in. holes 22 ft. deep were drilled on 20-ft. centers, loaded with Hercomite 6A at 150 lb. per hole (0.3 lb. per yd.), Primacord fired.

The shovels worked a 20-ft. face, loading rear-dump trucks and bottom-dump wagons for an average 5,300-ft. haul. Of the 61 units in the hauling fleet, eleven were 20-yd. (pay dirt) Mack trucks with 325-hp. Buda diesels originally developed for mine use in the Iron Range. The rest were Euclids, split about evenly between 13-yd. wagons and 15-yd. trucks. These also handled the output of a couple of smaller diesel shovels that worked with the electrics.

Western operates on the rational theory that it's cheaper to build and maintain good haul roads than to let poor ones force an increase in the hauling fleet. They kept Caterpillar and Allis-Chalmers graders and Jeep-mounted dozers smoothing the roads and removing spillage for safe hauling at high speeds to cut down cycle time. And, after rains, they skimmed the slick wet layer from the roadway surface so the rigs could resume hauling sooner.

Safety was always in the forefront. Where possible, haul roads were limited to one-way traffic; low wind-



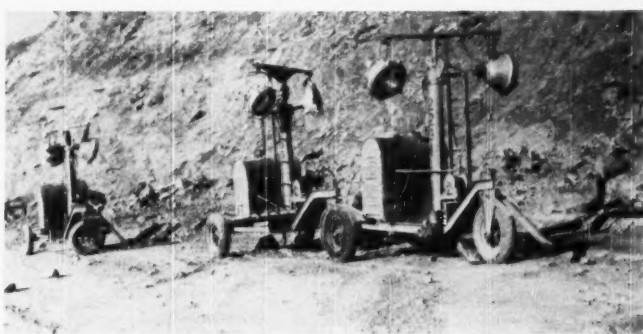
**FILL IS WATERED** by 4,500-gal. sprinkler with swivel spray bars (left). International engine driving Gorman-Rupp pump on Euclid-built trailer is air-controlled by tractor operator. Opening pump



engine throttle automatically opens water valve. Smaller 3,000-gal. trailer (right), a converted dirt wagon, is one of seven similar sprinklers drawn by Caterpillar DW-10's.



**CONTRACTOR WORKS** two 10-hr. shifts, six days a week, with night work made safe by portable floodlights. Skid-mounted 35-ft. steel pipe towers (left) with two 1,500-w. lights in each reflector,



supplied by Caterpillar 30-kw. generator set, are some of many that dot fill. Tricycle unit (right) with 1 1/2-kw. Kohler generator and winch-raised telescoping light standard are highly mobile.

rows of dirt separated the lanes on two-way roads. Because there were many different classes of material going to separate locations, there were some conflicting traffic patterns. But at each crossing, a positive traffic control was set up with manual two-way stop lights.

One of the prime requisites for a profitably safe and efficient job is to have safe and efficient machines. Western kept their rigs in top-notch shape in a 40x140-ft. Vinelle steel shop building with a couple of 20x60-ft. Stran-Steel Quonsets and one 60x60-ft. Star building tacked on. Here, units were overhauled at least once every 500 hr., being completely steam cleaned, repaired and painted before being sent back to the field. To save equipment down-time, complete assemblies (such as engines and transmissions) were installed rather than just the repair part needed to keep the machine operating. Then the assembly that was yanked out was reconditioned to be kept on hand for quick installation in the next casualty.

Here's a trick that saved money: A second oil filter was added to the engines. The filter was hooked up so that oil went through it immediately before going to the bearings. The filter element was a cloth bag, and this was inspected at all oil changes. If any cuttings were found in the bag, the machine was checked to find out what was wearing. Thus, trouble could be corrected before damage extended to the whole engine.

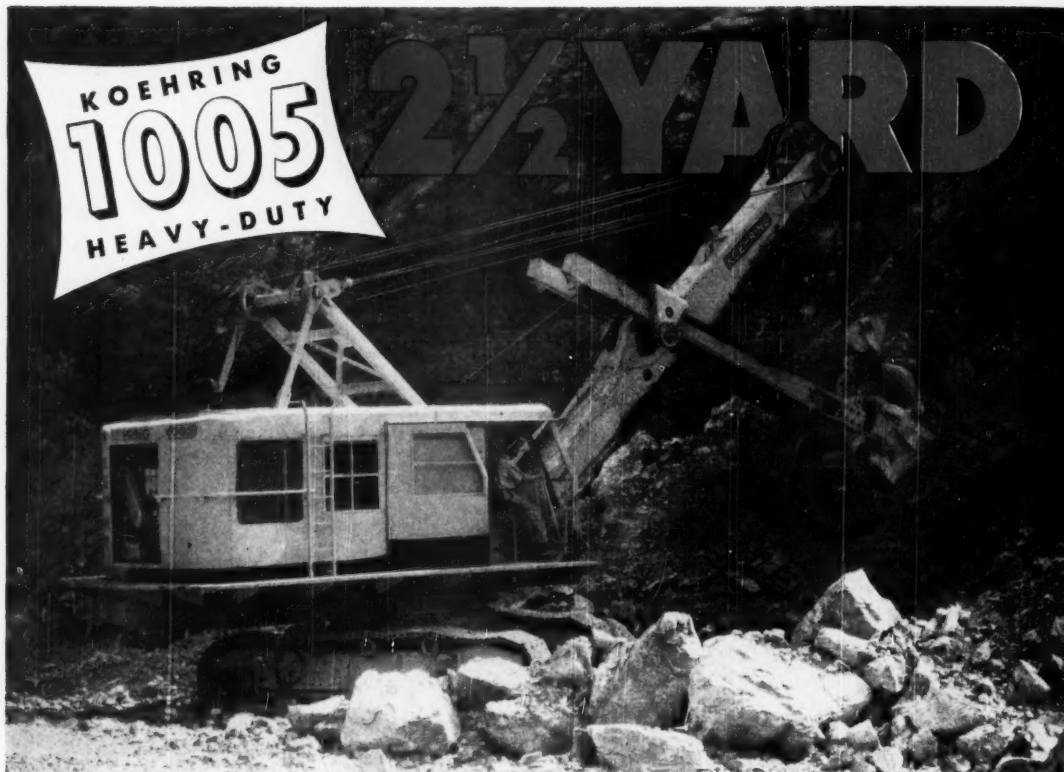
By getting good equipment, using it efficiently and  
(Continued on page 74)



**JOB PROGRESS** (much better than expressions would indicate) is discussed by Western Contracting Corp.'s project manager GARLAND EVERIST, left, and superintendent C. COLLINS. They direct an efficient earthmoving team.

**KOEHRING**  
**1005**  
**HEAVY-DUTY**

**2½ YARD**



**K**OEHRING 2½-yard 1005 has plenty of power, stamina and weight-stability to hold solidly when digging into the toughest rock banks. It's specially-engineered for heaviest 2½-yard service.

Every operating assembly, from the 1005's cast-alloy crawler shoes to boom point, is extra-heavy-duty to meet the typical strains of 2½-yard digging. Crawler frames and axles are separate units from the carbody . . . provide "give" in the excavator base. Crawlers are easily moved in for shipping clearance. Positive traction-brake steering provides exceptional maneuverability. Center pivot bearings protect vertical traction shaft from horizontal stresses . . . husky hook rollers resist vertical stresses. Compact upper machinery, on one-piece turntable, is simple, accessible.



Big 37", double-band swing clutches are self-equalizing. Clutch housings

constantly rotate, dissipate heat, give smooth, cool operation. Entire machine is 100% mechanical . . . no complicated hydraulic or air systems requiring service specialists. Adjustments are easily made by operator.

Operators also like the way the 1005's big, 48" power clutch retains "feel" of load . . . with only 1/10th the normal lever pull. Another Koehring feature, instantaneous dipper trip, works every time . . . saves spillage . . . speeds loading for top yardage output.

This heavy-duty Koehring 1005 is diesel powered, can also be furnished with electric motor. Quickly converts from shovel to dragline, clamshell or lift crane. Safely lifts up to 79½ tons . . . boom sections up to 120', plus 30' jib. Other Koehring excavator sizes: ½-yd. 205, ¾-yd. 304, 1½-yd. 605.

YOUR KOEHRING DISTRIBUTOR HAS ALL THE FACTS . . . CHECK THIS 2½-YD. 1005 TODAY

**KOEHRING COMPANY**  
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SUBSIDIARIES: JOHNSON • PARSONS • KWIK-MIX



# FOR *Power* *Strength* *Weight*

● EVERY ASSEMBLY HEAVY, POWERFUL  
... ENGINEERED SPECIALLY FOR 2½-  
YARD EXCAVATOR SERVICE

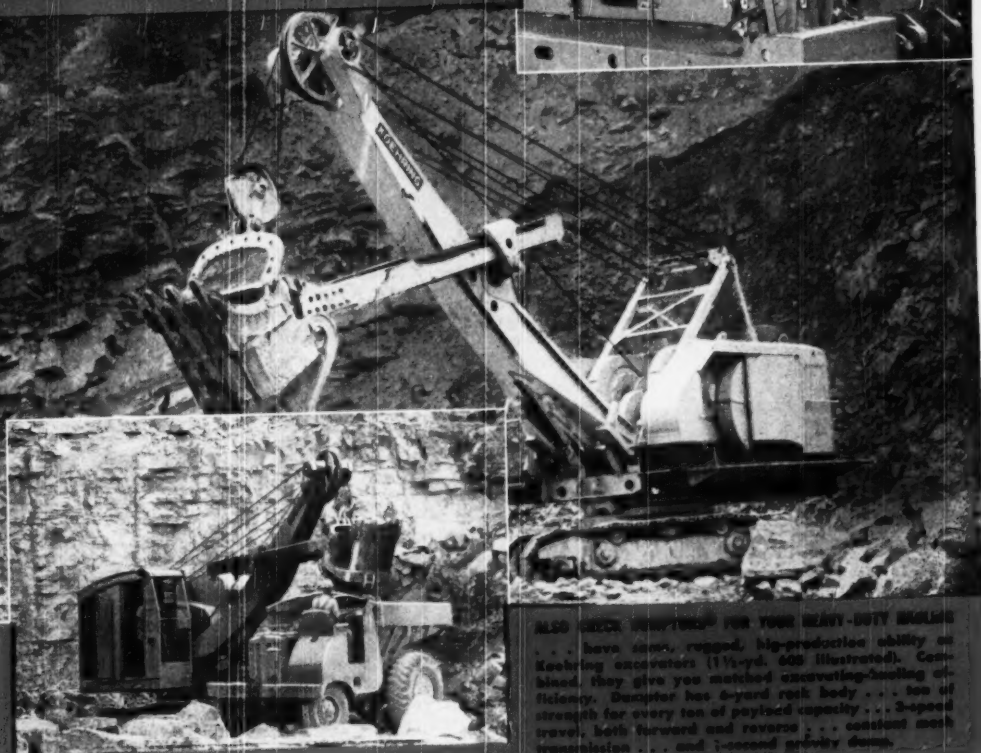
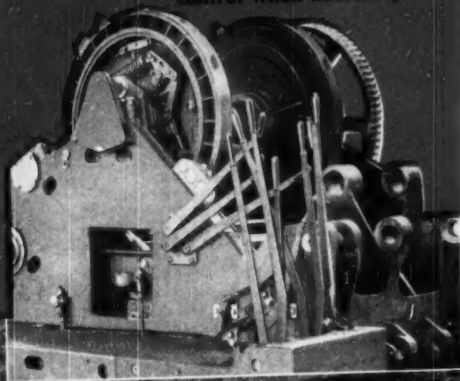
● PLENTY OF WORKING WEIGHT BE-  
HIND POSITIVE CHAIN CROWD FOR  
DIGGING INTO ROCK BANKS

● RIGID BOX-DESIGN BOOM, MASSIVE  
SHOCK ABSORBER MOUNTING, DOU-  
BLE DIPPER STICKS, TORSION-RESIST-  
ANT SHIPPER SHAFT, ALL ABSORB  
STRESSES OF FAST ROCK HANDLING

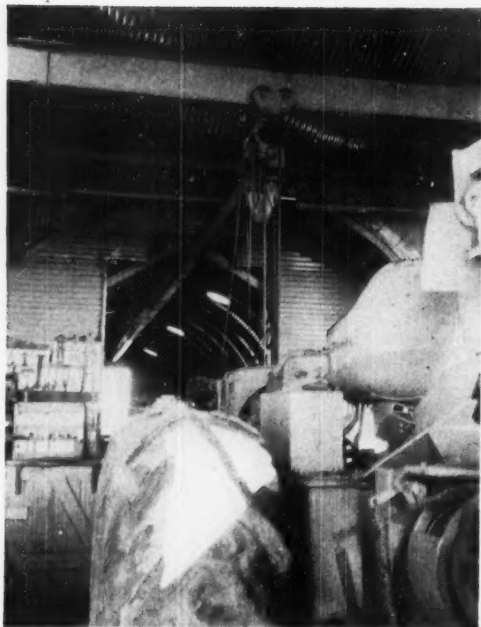
● SAFELY LIFTS UP TO 7½ TONS  
Boom available to 120', plus 30' jib

● LIGHT LEVER PULL SETS BIG 48"  
POWER CLUTCH ...

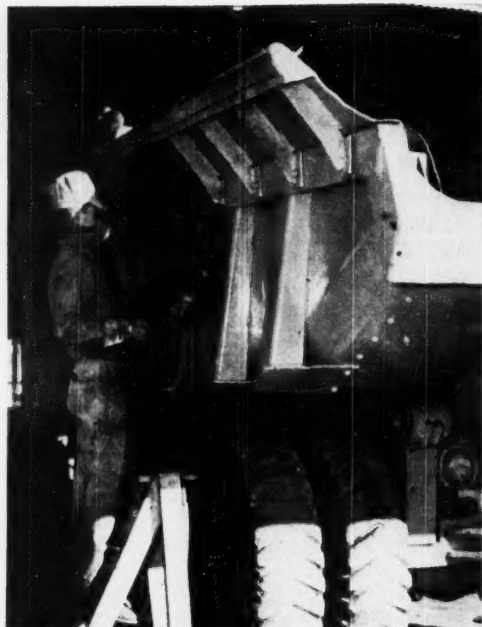
Power-actuated clutch takes only 1/10th the  
pull required to set a manual clutch of compara-  
tive size ... yet, retains "feel" of load. Heat  
compensator spring controls power output ...  
automatically adjusts clutch for heat expansion.  
Power clutch easily converted to full manual  
control when necessary.



ALSO CHECK KEESHRING® FOR YOUR HEAVY-DUTY NEEDS  
... have tough, rugged, big-production ability on  
Keeshring excavators (1½-yd. 608 illustrated). Com-  
bined, they give you matched excavating-loading ef-  
ficiency. Dumpster has 6-yd. rock body ... ton of  
strength for every ton of payload capacity ... 3-speed  
travel, both forward and reverse ... constant mesh  
transmission ... and 1-second gravity dump.



**MECHANIZATION** extends to maintenance shop, where six Yale 2-ton electric hoists on monorails make heavy lifts. Quonset at rear handles engine and transmission repairs. A second 20x60-ft Quonset serves as stockroom and maintenance office.



**LAST STEP IN OVERHAUL** is a triple-purpose paint job. Besides protecting machine and making it highly visible for safety, bright orange paint boosts operator's morale—he takes more pride in his rig; runs it more safely and efficiently.

*(Continued from page 71)*



**PUMP BARGE** delivered river water to sprinkler filling tanks before shore pumping station (one 1,200-gpm. pump) was installed. Unit has Caterpillar diesels driving Dayton-Dowd pumps (each 300 gpm. at 300-ft. head), all on pair of 10x30-ft. war-surplus amphibious trailers welded together. At sprinkler filling station, air valve controlled by driver fills his 4,500-gal. trailer in only 55 sec.

keeping it well maintained, Western Contracting Corp. moved  $1\frac{1}{2}$  to  $1\frac{3}{4}$  million yd. per month. Responsible for this nice yardage were: Garland Everist, project manager; C. Collins, superintendent; and H. Holderby, master mechanic.

#### Army Personnel

For the Corps of Engineers, U. S. Army, Colonel Henry J. Hoeffer is district engineer at Omaha and George O. Evans is area engineer at the damsite, assisted by C. Bart Stokes. B. M. Babb was resident engineer for the Government on both of Western's contracts: the \$4,415,000 Initial Earthwork and \$4,200,000 Stage II.

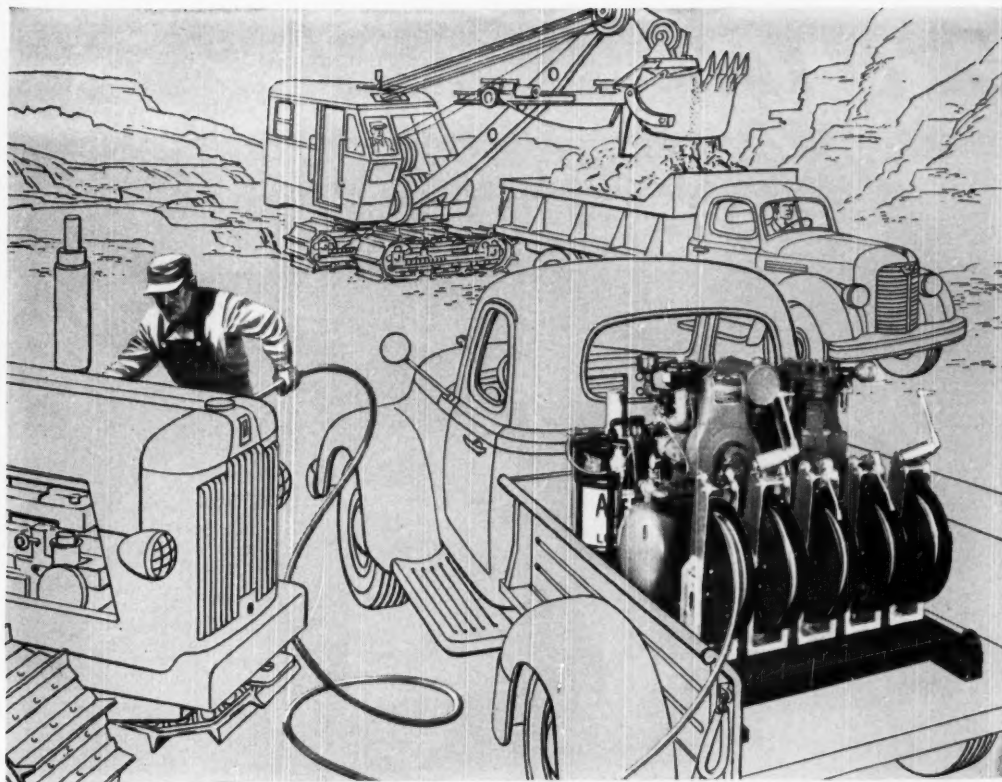
## Contractor Publishes Third Book

**BOOK-WRITING CONTRACTOR**, J. L. Allhands, partner in Allhands & Briley, Dallas, has published his third book on early Texas railroad construction, "Uriah Lott—Dauntless Pioneer and Man of Vision". (The Naylor Company, San Antonio 6, Tex., \$2.95). Uriah Lott built the first railroads into Corpus Christi and Brownsville, Tex., and helped develop the now fabulous Lower Rio Grande Valley.

Allhands, still active in contracting after 53 years of railroad construction, also wrote "Gringo Builders" and "Boll Weevil," both pertaining to pioneer railroad building in Texas. His fourth and most ambitious book, "Tools of Construction" is now on the press. It is a complete history of the development of construction equipment. It should be interesting and valuable to all contractors.



J. L. ALLHANDS



**NOW—MAKE ANY PORTABLE GREASING RIG YOU WANT!**

## ALEMITE Portable Service Stations are S·E·C·T·I·O·N·A·L·I·Z·E·D

Now you can group just the equipment you need into one versatile rig for on-the-job lubrication! Whatever selection of chassis or gear-oil pumps and reels you require for 100-lb. drums, Alemite now combines them into a tailor-made Portable Service Station—exactly keyed to your needs.

No matter how far afield your equipment is working, every machine you operate gets faster, better lubrication at lower cost! Air-operated pumps deliver oil or grease direct from barrel to bearing, right on the job. Downtime for lubrication is cut. Lubricants are not exposed to dirt or dust. And you avoid costly bearing failures.

Any Portable Service Station you need can be easily assembled from these new, sectionalized Alemite units.

Other heavy duty pumps, reels and accessories are also available for 400-lb. and 54-gal. capacity drums.

WRITE TODAY for your free, illustrated catalog! Address inquiries to Alemite, Dept. F-30, 1850 Diversey Parkway, Chicago 14, Illinois.



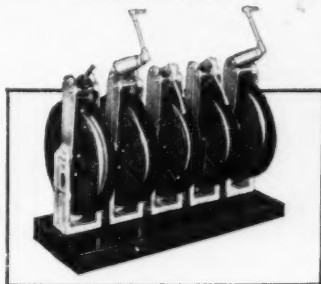
### ALEMITE

Pacemaker in Lubrication Progress

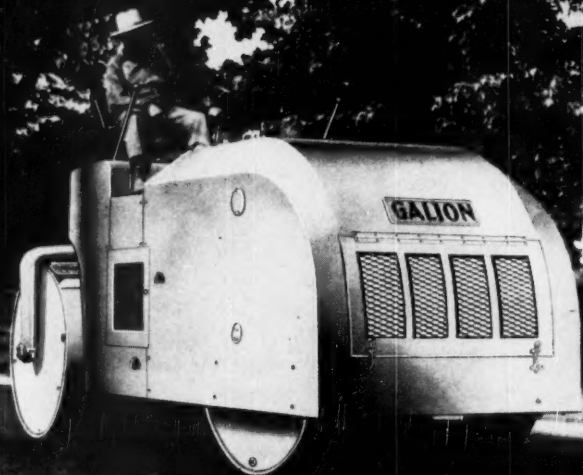


◀ **Alemite Pumps**, air-operated, for delivering chassis grease and gear oil from 100-lb. drums. Available for individual or "group" installation.

**Alemite Hose Reels** for high and low-pressure delivery of chassis grease, gear oil, engine oil, air and water. Available in single or multiple units to suit any requirement.



# **GALION** TANDEMS *for better-than-ever* **PERFORMANCE**



*Three  
Sizes*

**5 - 8 Ton**

**8 - 12 Ton**

**10 - 14 Ton**

Other small tandems  
are available.

#### FOR PRECISION ROLLING—

- Dual clutch levers.
- Dual brake pedals.
- Dual sprinkler pedals.
- Movable operator's seat.
- Unequalled visibility of surface being rolled.

Write for literature

# **GALION**

ESTABLISHED 1907

## **MOTOR GRADERS • ROLLERS**

THE GALION IRON WORKS & MFG. CO., General and Export Offices — Galion, Ohio, U. S. A.  
Cable address: GALIONIRON, Galion, Ohio



# GET BIG PRODUCTION AT LESS COST ON SMALL, PROFITABLE JOBS WITH A BANTAM

Shovel • Trench Hoe • Dragline • Crane • Clamshell • Magnet Crane • Pile-driver

## CUT YOUR JOB COSTS ... CHECK THE PRICE:

**\$520000** ( $\frac{1}{2}$  yd. dragline)

Less truck, f. o. b. factory

## CHECK THE PRODUCTION:

**DRAGLINE OR SHOVEL**

100 Yards Per Hour

**TRENCH HOE**

100 Feet of 3 Ft. Ditch Per Hour

**MOBILE CRANE**

Lift 10,000 lbs.

Bantam ready to load-out another heaped bucket of rocky material. Full boom swing, fast cycles keep job on high production ... more pay loads per hour.

## Bantam Offers Increased Job Profits

Low in initial cost, low upkeep, long service-life are a few of the reasons why the BANTAM assures BIG SAVINGS on many jobs and always earns BIG PROFITS on smaller jobs. You don't tie-up large, expensive equipment to handle those profitable easy jobs like ditching, drainage work, laying tile, culverts, backfilling, digging foundations, lifting and spotting steel or other erection; piledriving, loading materials, cleaning or sloping banks, making small road repairs. You'll find a BANTAM big enough to put your job on a high production basis, yet small enough to handle scores of profitable odd jobs.

## Mobility Cuts Time Between Jobs

The BANTAM mounts on any  $1\frac{1}{2}$  ton (or larger) tandem axle truck. Rolls on rubber—travels anywhere at truck speeds. You eliminate need for costly hauling equipment ... save manpower and time loading and unloading.

BANTAM with truck weighs about 8 tons ... no worry about crossing farm-to-market road bridges due to load limits. Operator just drives up to an excavating, material handling or lifting job and goes to work.

See your Schield Bantam Distributor. He'll give you facts and show you a BANTAM operating in your territory. Or, fill out handy coupon below ... MAIL IT TODAY!



Bantam with clamshell, 25' boom, makes easy work of handling loose, heavy sand in Florida. Machine is owned by the City of Miami.



**THE SCHIELD BANTAM CO., INC.**

221 PARK STREET

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CONSTRUCTION EQUIPMENT DEALERS  
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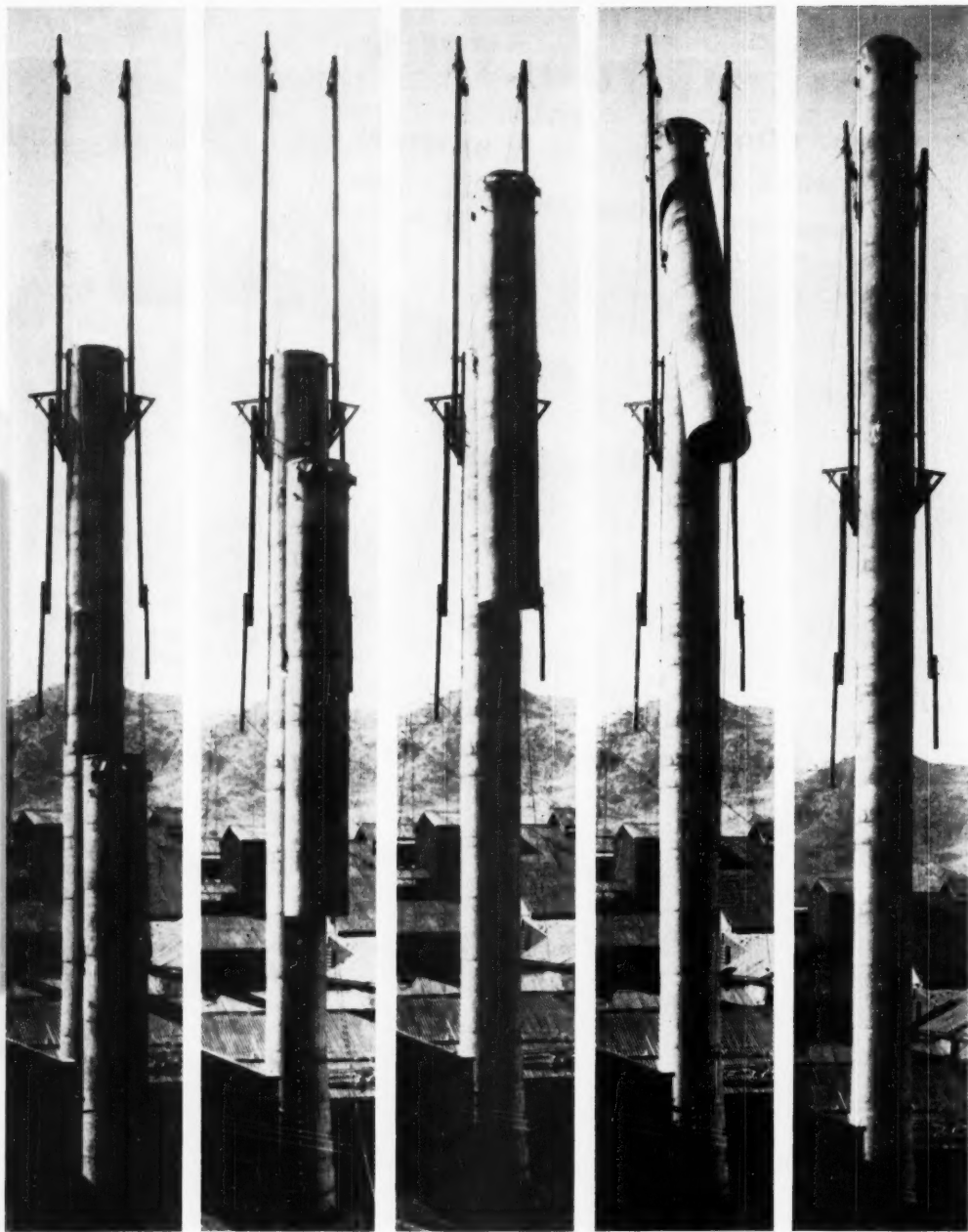
- ☐ Please send complete information on Schield Bantam products.  
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Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



## NOVEL RIGGING ERECTS 100-FT STACK

McGraw-Hill World News

UNABLE TO BRING a crane into the crowded gas-works area, company engineers used sound thinking and ingenious rigging to raise a 100-ft steel stack of 57-in. dia. With the aid of an engine winch, two guide poles and several guy lines, they erected it in three sections.

Picture sequence shows placement of last section atop center piece which had pre-

viously been placed in similar manner. Guide poles were inserted in chair supports on side of stack with heavy extensions hung down to keep them plumb and compensate for weight of upper tackle blocks. Tapered projections on upper rim of center section guided top piece to flush fit for welders.

Job was done for Colonial Gas Association Ltd, Townsville, Queensland, Australia.

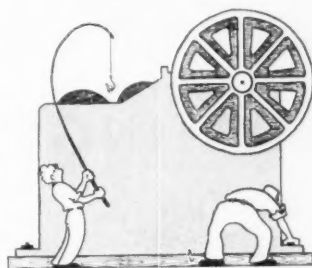
## How to Adjust Crusher Toggle Plates

AFTER A NEW TOGGLE PLATE has been installed in a jaw crusher, a little care in adjustment and seating will pay off in longer life and more satisfactory operation.

After the crusher discharge opening has been set with the new toggle plate, the crusher will have to be operated under load to seat the new toggle plate in the pitman seat and in the groove in the toggle-bearing wedge. Remove cotter pin from coupler pin in adjusting chain, disassemble chain and remove from adjusting sprockets. Raise or lower the adjusting wedge by operating the adjusting sprocket with the handle. Operating the adjusting sprocket will equalize the pressure imposed on the toggle plate and will stop the clattering and pounding noise. When the toggle plate has been seated in, line up the holes in the adjusting chain, insert the pin and replace cotter pin.

*What causes excessive wear on the toggle bearing wedge?*

This is caused by the use of worn-out toggle plates, by the lack of proper tension on the tension spring, by improper adjustment of the adjusting mechanism and the lack of proper lubrication.



*What causes excessive wear on the adjusting wedge?*

This is caused by the lack of proper adjustment of the adjusting mechanism and by the lack of proper tension on the tension spring.

*What is the purpose of the tension spring?*

The spring, together with the tension rod and nut holds the pitman against the toggle plate, maintaining proper seating of the toggle plate.

*Where is the most wear on the crusher jaws and why?*

Most of the wear on the jaw plates is at the bottom where the seating is the smallest, therefore the jaws are designed so they can be turned end for end to obtain maximum wear and prolong their useful life.

*What is the normal operating temperature of the spherical roller bearings?*

These bearings normally operate at a temperature of 100 deg F to 130 deg F. But in warmer climates may operate at 160 deg F, periodically running as high as 200 F. Under these conditions and within these limits there is no cause for alarm. However, if a bearing maintains a temperature of 212 deg F or higher, it is considered as overheating and the cause should be found and corrected immediately to prevent damage.

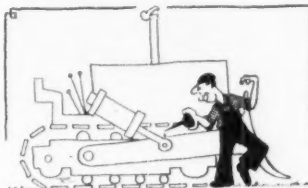
Never reduce bearing temperatures by artificial means, such as pouring water on them, as the sudden change in temperature is apt to warp, crack or crystallize some part of the bearing assemblies.

## Lubrication Is the Key to Preventive Maintenance

THE FOLLOWING GOOD ADVICE on preventive maintenance on heavy construction equipment comes from the Allis-Chalmers Tractor Division Service Department via the A-C house organ "The Reporter".

A small amount of attention daily, weekly and monthly will keep the machine in good condition and pay large dividends in saving of time and expense. A definite schedule should be set up for lubrication and preventive maintenance.

Lubrication is an essential part of preventive maintenance, controlling to a great extent the useful



life of the machine. Various types of lubricants are needed and some units in the machine require more frequent lubrication than others. Therefore it is important that the type of lubricant and frequency of application, as recommended by the manufacturer, be followed ex-

plicitly. Periodic lubrication of the moving parts reduces to a minimum the possibility of mechanical failures.

To prevent minor irregularities from developing into serious conditions that might involve shutdown and major repair, other services are recommended at the same intervals as the periodic lubrication. The purpose of these services or inspections, which require only a few minutes, is to assure uninterrupted operation of the machine by revealing the need for adjustment caused by normal wear. The need for some minor adjustment.

*(Continued on page 80)*

Spring is in  
the AIR  
AND

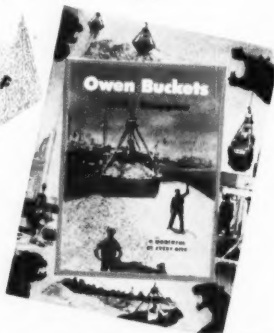


## CONTRACTS WILL BE A'LETTING!

Yes, Spring is approaching and its arrival will be marked by contract letting and acceleration of jobs under way. Since profitable operations today are more dependent than ever before upon efficient tools, alert contractors will be giving thought to the purchase of essential new equipment. In this connection you should have a copy of the new Owen Catalog. It not only illustrates and describes the comprehensive line of Owen Buckets and Grapples but contains many photos of equipment applications that will be interesting and helpful. Write today for your copy.

GET THIS NEW CATALOG OF

## Owen Buckets and Grapples



(Continued from page 79)

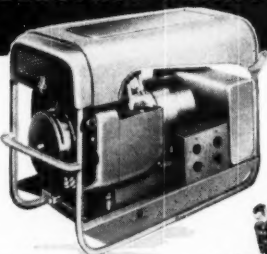
if neglected, could result in failure and shutdown.

The operator is the most important controlling factor in the preventive maintenance program. He is the first person to know that a machine is not functioning properly. He naturally notices the engine temperature, oil pressure, fuel pressure, ammeter, etc., while operating. The operator should be instructed to tell his foreman or the master mechanic about any adjustments, repairs or loose or missing parts that he knows are needed. If taken care of promptly, much of this can be done at the end of the shift, or between shifts, thus preventing lost time. Inspections, adjustments and minor repairs can be made while the machine is being lubricated.

A thorough knowledge of the particular machine is needed to perform maintenance operations correctly. The instruction manual was prepared to furnish the user with essential information necessary to obtain satisfactory performance and keep the machine in good operating condition. It should

(Continued on page 88)

**Cut Costs!**  
with **ONAN** portable  
**ELECTRIC PLANTS**



Take 'em Anywhere!

Use Electric Tools on Every Job

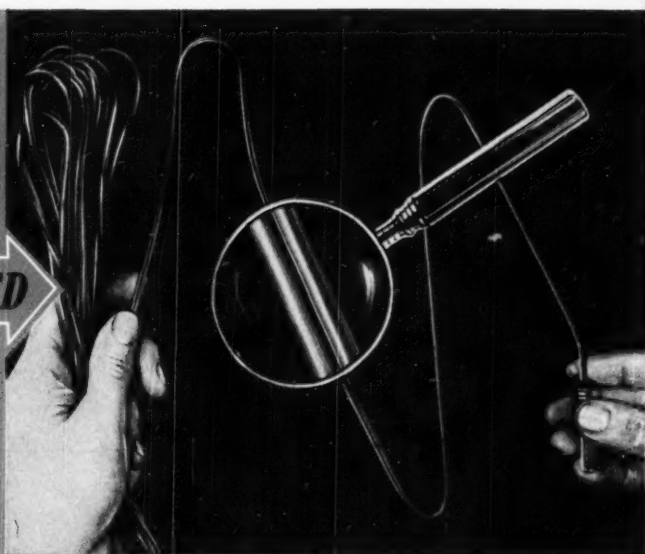
Carry, wheel, or truck 'em to any spot and plug in for all the electric power you need. Lightweight, Onan air-cooled electric plants supply power for electric drills, saws, planers, spades, tampers, lights... any electrical equipment. Lightweight A.C. models: 400 to 3,000 watts, D.C.: 750 to 5,000 watts. (Heavy-duty gasoline or Diesel plants to 75,000 watts.)

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**D. W. ONAN & SONS INC.**  
6762 Royalston Ave., Minneapolis 5, Minnesota



*Announcing*  
**the New**  
**ATLAS**  
**PLASTIC-INSULATED**  
**blasting cap**  
**wiring**



*Designed for roughest field conditions...  
to meet the most exacting demands of blasters*

Hundreds of good plastic insulating compounds were tried and rejected by Atlas Research before the new Atlas plastic-covered wire was developed. Our wire had to measure up to the most rigid demands of men who use electric blasting caps under every conceivable condition.

If you're one of our many customers who have already tried the new Atlas plastic-covered leg wires or connecting wire, you'll agree that this wire comes up to the highest expectations—and more! Here's why:

- ① *It's really tough—and truly waterproof!* Thick plastic covering, made to withstand rough handling in jagged bore holes. Fully waterproof. Extremely high insulating value.
- ② *Less kinking and snarling!* With minimum care, it folds or reels out without tangles or kinks—saves time and tempers in hooking up.
- ③ *Flexible at 20° below zero!* Made to withstand Arctic or Tropic weather.
- ④ *Easy on eyes and hands!* No eye-strain to see the brilliant orange or yellow wire, even in dull light. No rough edges when duplex wire is separated into single strands.
- ⑤ *Stands up to rigid tests!* Compare it with other wire for these outstanding properties; and also for high tensile and compression strength; resistance to deterioration from weather, rodents, vermin.

Now available in duplex on all Atlas Manasite electric blasting caps with wires 30 feet long or more. Two single plastic-covered wires on shorter lengths.

Another outstanding contribution to explosives progress by the makers of ROCKMASTER, the original split-second delay blasting system.

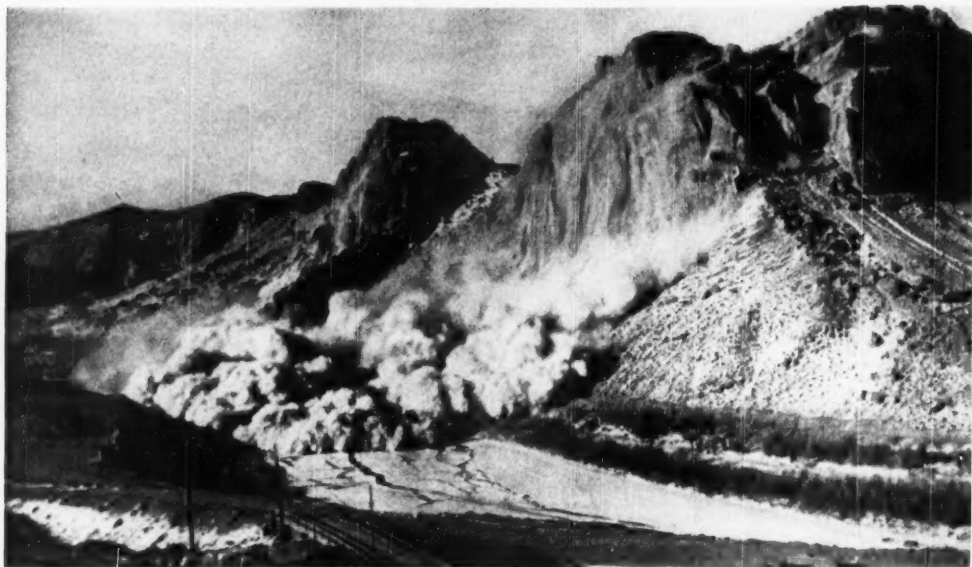
ROCKMASTER, MANASITE: Reg. U.S. Pat. Off.

**ATLAS** **EXPLOSIVES**  
*"Everything for Blasting"*



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## CONSTRUCTION 'ROUND THE WORLD...



**UNITED STATES**—King-size blast—produced by touching off two freight carloads of TNT—knocks down 150,000 cu yd of rock for Boysen Dam. Morrison-Knudsen Co. is building earth- and

rock-fill structure in Wind River Canyon of Big Horn River near Thermopolis, Wyo., under \$13,900,000 contract with Bureau of Reclamation.—Wide World Photo



**YUGOSLAVIA**—Old-style paver, finisher and construction railway are new equipment on bee-line highway linking capital Belgrade, with Zagreb the second city. Most of road has been hand-built by youth brigades working without pay.—Wide World Photo



**SCOTLAND**—Holing-through celebration takes place 350 ft underground in middle of Clunie Tunnel, to be largest (5 mi; 23-ft dia) conveying water in Great Britain. Final blast made beer flat, but didn't dampen tunnelers' spirits.—British Combine Photo

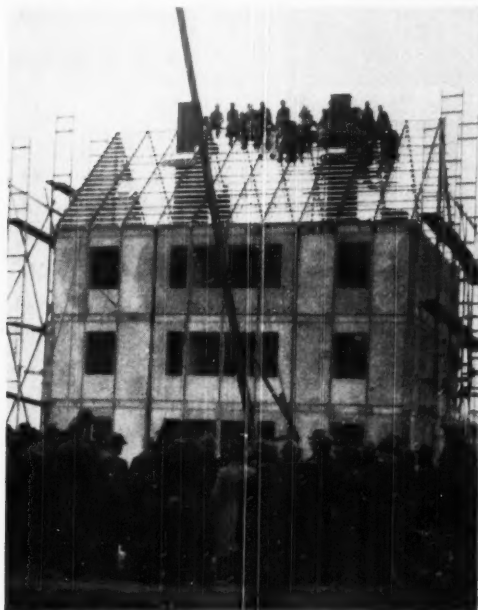


**INDIA**—For first time, guniting process is used in India housing—and in a big way. Bombay, Baroda & Central India Railway is building 1,000 twin 2-room dwellings for trackmen at \$1,500 each. Wall core is 2-in. wire mesh between cast concrete pillars.

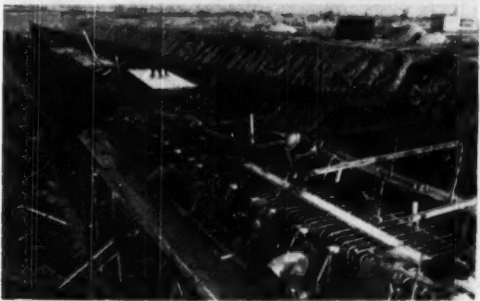
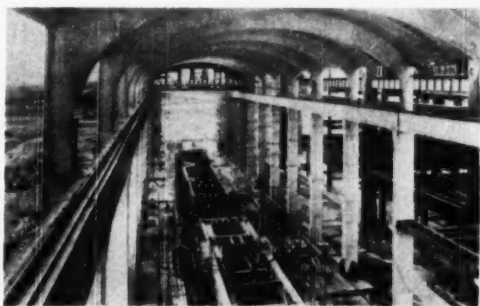


**PUERTO RICO**—Modern machines lay first section of \$5,000,000 four-lane concrete roadway which will run from Rio Piedras 13 mi to Caguas, largest mid-island community. Island already

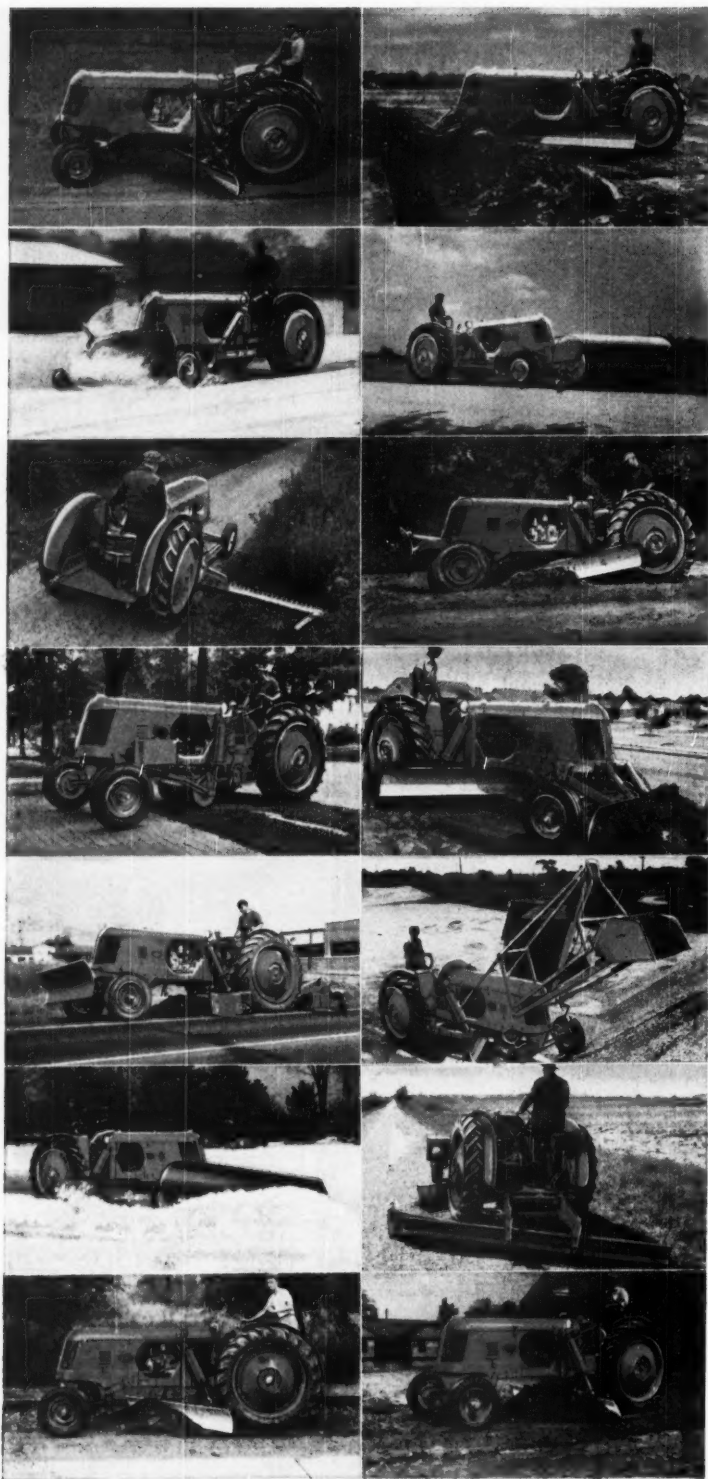
boasts best highway system in Caribbean area, and its 2,000 mi of paved roads are being expanded and improved by a \$30,000,000 long range construction program.



**GERMANY**—Recent view of one of new Messerschmitt houses in Munich during demonstration of roof steel erection. Noted German plane designer is in charge of city-governed project for multiple houses built after his own design.—Wide World Photo



**ENGLAND**—Power station near Leeds (top) approaches completion. It is one of 38 proposed to boost power 40%. Concrete is poured (bottom) in one of four subways to carry surface traffic to center of new London airport.



## Some of the MORE

### *Does Many Jobs .... BIG JOBS*

The HUBER Maintainer costs only ONE-THIRD the price of a big motor grader, yet it does ALL of your grader maintenance work.

It outperforms many machines that are larger, heavier, more costly, slower, more expensive to operate, more limited in use. For proof of these statements, see a demonstration.

The HUBER Maintainer is backed by a dozen years of experience in the field on federal, state, county, municipal, township, airport, cemetery, industrial and contract work.

It does all of grader maintenance work . . .

### *PLUS*

. . . these important jobs, with attachments:

- BERM LEVELING
- ROAD PLANING
- BULLDOZING
- LIFT LOADING
- SNOW PLOWING
- HIGHWAY MOWING
- BROOM WORK
- PATCH ROLLING

# HUBER

Marion,



# reasons a **HUBER** gives you **WORK for your MONEY!**

## MANY FEATURES

**42½ H. P.**—More power than many graders. More power, by far, than in ordinary maintainers. Plenty of reserve for the toughest jobs.

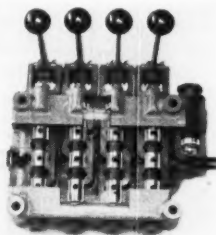
**OVER 6,000 LBS.**—The HUBER Maintainer weighs over 6000 lbs. with solution in the rear tires. Enough weight for most grader requirements . . . enough for all maintenance work.

**BLADE IS PUSHED**—Owners credit HUBER's blade-pushing design for a **THIRD MORE WORK** than conventional pulled blades would produce. Power is transmitted directly from the driving wheels to the moldboard.

**COMPARE** the HUBER with ANY grader or maintainer on the basis of horsepower, cost, proven dependability, versatility and long range economy.

## HYDRAULIC CONTROLS

These hydraulic valves control the raising, lowering and ANGLING of the blade and ALL MOVEMENTS of the versatile attachments. Conveniently grouped finger-tip controls are smooth operating and quick acting. Special steel tubing is used to convey oil to cylinders except at points where the flexibility of hose is required.



### *Makes Budgets Go Farther*

The HUBER Maintainer is easy on budgets, both in the initial cost and in operating costs. You can buy TWO HUBER Maintainners and pay their operating expenses for a year for the price of one large motor grader.

There's a HUBER Distributor near you—Call him today or write to the factory.

## *Some of the jobs **HUBER** Maintainers are doing*

**GOVERNMENTS**—Care of highways, secondary roads and lands in national parks, reservations, etc.

**STATES**—Many kinds of highway grading and maintenance work.

**COUNTIES**—Every-month care of highways and secondary roads.

**MUNICIPALITIES**—Street and alley grading and maintenance, care of parks, dumping grounds, etc.

**TOWNSHIPS**—The all-around grading and maintenance machine for township roads.

**PUBLIC GROUNDS**—Care of parks, playgrounds, conservation areas, public beaches, etc.

**OILFIELDS**—Grading and maintaining roads; building dams around oil wells and storage areas.

**CEMETERIES**—Every-month care of drives, mowing, developing new grounds, snow removal, patching, etc.

**AIRPORTS**—Grading unpaved areas, patching pavement, mowing, snow removal by plow or broom, towing, etc.

**LOGGING**—Grading and maintaining logging roads and grounds.

**INDUSTRIES**—Care of industrial roadways and grounds.

**MINES**—Care of roadways; sweeping coal veins before removal.

**ESTATES, RANCHES**—Care of roadways and grounds.

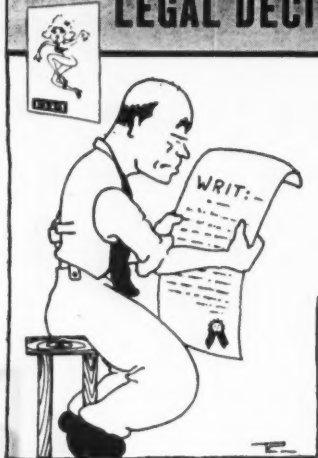
**RACE TRACKS**—Care of tracks and surrounding grounds.

**CONTRACTORS**—Performs many different jobs in all kinds of contract work.

**MFG. CO.**  
Ohio

Manufacturers of HUBER Maintainners, HUBER Tandem and 3-Wheel Rollers and HUBER Graders

## LEGAL DECISIONS CONCERNING CONSTRUCTION



### The Broken Agreement

ON A CERTAIN Sunday the contractor gave John Doe a check on a New York bank.

"It's understood that you're not to present this check until next Saturday," the contractor stipulated.

"I'm willing to take it on that condition," Doe agreed, and pocketed the check.

The next morning, which was Monday, according to the calendar, the contractor met John Doe and Richard Roe in front of the bank building.

"I came down this morning to get your check certified," Doe announced.

"Glad you told me," the contractor remarked and entered the bank.

"There's liable to be trouble over this check, and I'd better endorse it over to you," Doe suggested. He and Roe entered the bank, Doe endorsed the check, Roe added his endorsement and pushed it through the paying teller's window.

"Payment stopped three minutes ago," the teller informed him, and Roe sued the contractor on the check.

"You knew that Doe took the check on a condition that he broke," the contractor protested.

"I admit that, but I was not bound by any conditions between you and Doe," Roe retorted.

On this admission, however, the New York Supreme Court, in a case reported in 213 New York Supplement 33, ruled in favor of the contractor.

"The check having been made and delivered upon a condition, whether it be called a condition precedent or a condition subsequent, and that condition violated by the payee, it seems to me to be clear that defendant had a right to rescind the transaction to that extent at least and to stop the check," said the Court.

### The "Partner" Ship

THE CONTRACTOR had sailed in a partnership for three months, found it an unsatisfactory method of transportation, and was talking to the cashier of the River Bank.

"Brown and I have dissolved partnership in the construction business," the contractor announced, "and I intend to carry on in the old stand."

"So I've been informed by Brown," the cashier agreed.

"There's a disputed account between us. Brown contends that I owe him about \$4,000, and I say the boot's on the other foot," the contractor explained.

"That, I'm afraid, is between you and Brown."

"I know, but Brown's your president and I've got \$3,000 that I'd like to put in a checking account for new supplies to stock up the warehouse, but I'm afraid that Brown'll grab the money as soon as it goes to my credit," the contractor demurred.

"You don't need to worry on that score—I'll guarantee your money'll be protected," the cashier agreed, the contractor made the deposit, ordered \$3,000 worth of supplies from his wholesaler, gave a check on the River Bank, and when the check came in it was dishonored. The contractor's fears had been realized, and Brown had appropriated the \$3,000 checking account.

When the contractor learned these facts, he promptly borrowed the money, paid the wholesaler, sued the bank for the amount of his deposit, and the Texas Court of Civil Appeals decided in his favor.

"The bank is in good conscience and on its express agreement liable for the money. Persuasion was used to obtain the deposit, as the contractor felt reluctant to place it in the bank and did so only on

the express agreement of the bank not to permit Brown to appropriate it. The president at that time was not a partner and had no right to or interest in the deposit, and the bank was fully informed of the fact," said the Texas Court.

### The Guaranteed Ditch

"I CERTAINLY CAN dig you a drainage ditch that will carry all the water you will have to contend with for years," the contractor announced.

The owner was cautious.

"Will you put that in writing?" he asked.

The contractor did some rapid figuring on a scratch pad, added a bit to his first estimate and stated:

"I will dig your ditch for \$7,000 and guarantee it to handle any water flow you might have for two years."

"That's good enough for me," the owner stated, "let's find a lawyer and draw up the papers."

The contractor made better than average time on the work and had completed the job.

"That sure was fast work and it looks like good work, but we shall see," was the owner's comment.

"Yes, we did make good time and that ditch will do all I guaranteed," the contractor said.

"We shall see."

"Your check would be very welcome right now. We're moving to a new location in the morning," the contractor hinted.

"No check from me until the two years are up and I see if it is going to work," was the owner's startling statement.

"You can't mean that?"

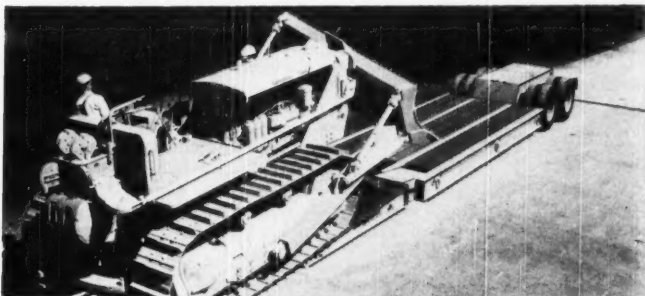
"I certainly do. No money for two years."

The owner stuck to his guns, but regretted it as the California courts held that: "In a contract to construct a ditch which was guaranteed to carry all the water of a creek for two years after its completion, the guaranty is in the nature of a warranty and does not require the contractor to wait for two years after completion of the ditch before being entitled to payment therefor," and is reported in 116 Cal. 454. The Kentucky and Wisconsin courts have arrived at the same decisions.

(Advertisement)

# NEW EQUIPMENT

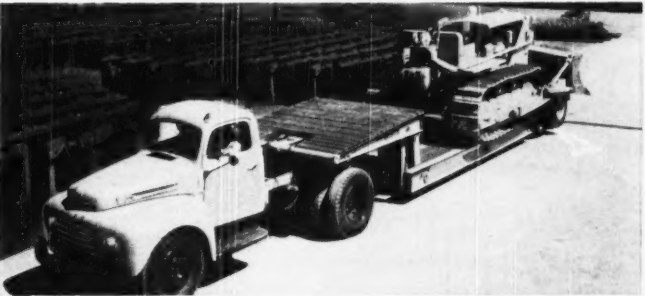
The Martin Machine Company, Kewanee, Illinois, has introduced a new trailer featuring a patented Folding Gooseneck which, when lowered to the ground, forms a loading ramp. The new trailer, in capacities up to 100-tons, eliminates cumbersome loading ramps and cribbing, reduces idle man and equipment hours. Loading can be accomplished by one man in a fraction of the time formerly required by several men. Low platform height, accomplished by front loading, provides greater clearance for viaducts, bridges and wires, assuring fast, safe movement between jobs. Like other Martin "Carryhaul" trailers, the new Folding Gooseneck will be sold exclusively through "Caterpillar" dealers. The sequence photos below show actual operation of the new Martin Folding Gooseneck.



Folding Gooseneck lowered to form ramp for loading D-8 "Caterpillar". Loading ramps and cribbing are eliminated. One man loads.



Folding Gooseneck being raised to towing position. Loading is easily accomplished in 5 minutes.



Ready to roll. Note low platform height which provides maximum clearance for viaducts, wires, bridges—greater safety.

## MARTIN PRESENTS THE NEW FOLDING GOOSENECK TRAILER

TO CARRY

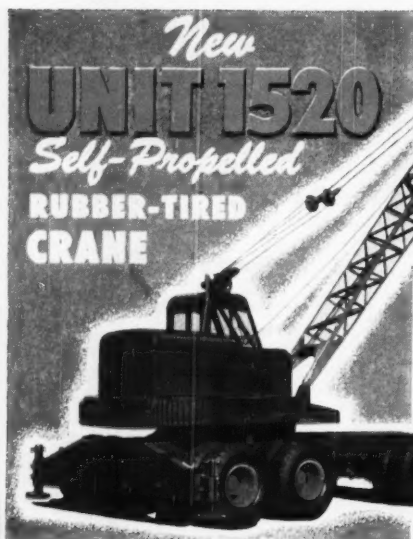


... TO LOAD OR UNLOAD



*Write* for complete information and specifications on the new Martin Folding Gooseneck Trailer.

MARTIN  
CARRYHAUL  
TRAILERS  
MARTIN MACHINE COMPANY  
KEWANEE, ILLINOIS—YOUR CATERPILLAR  
DEALER IS YOUR MARTIN DEALER



**15  
TON  
CAPACITY**



This 50,000 pound Mobile Crane is a completely new member of the UNIT Crane and Shovel line. Designed for both "on and off" highway operation. So compact, it works efficiently even in small, cramped quarters, "in or out" of the yard. Heavy Duty, yet operated with remarkable **SPEED . . . SAFETY . . . ECONOMY!**

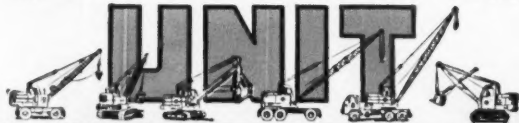
- Rugged Construction
- Perfectly Balanced
- Hook Roller Construction
- Operated by ONE Man
- Hydraulic Steering
- Powered by ONE Engine
- Air Brakes and 4 Speed Air-Actuated Transmission



UNIT 1520 can be equipped with retractable high A-Frame to permit capacity loads on extended boom at long radius.

## UNIT CRANE AND SHOVEL CORP.

6305 WEST BURNHAM STREET • MILWAUKEE 14, WISCONSIN, U. S. A.



**SHOVELS • DRAGLINES • CLAMSHELLS  
CRANES • TRENCHEES • MAGNETS**

## DREDGES

**ANY TYPE  
ANY SIZE  
ANY SERVICE**

Only Ellicott offers: 65 years of experience in dredge building; a complete line in all sizes; undivided responsibility—your dredge is designed, built and delivered under one contract.

# ELLICOTT

Write for catalog: **ELLICOTT MACHINE CORPORATION**  
1605 Bush St., Baltimore 30, Md.



## LUBRICATION HINTS

(Continued from page 80)

be used regularly for reference purposes.

**Fuel — Oil — Filters**

Any preventive maintenance program includes the proper handling and storage of fuels and lubricants.

Satisfactory performance and long engine life are dependent upon the use of correct types of fuel and lube oil. Refer to the information given on instruction plates on the engine and in the operator's instruction manual.

The recommended fuel and lube oil filter change periods are established for average working conditions. It may be necessary to change elements more often under severe and extremely dirty operating conditions.

The fuel filter element change periods depend mostly upon cleanliness of the fuel—the way it is handled and stored at all the various points from refinery to fuel tank.

Filters and elements in them are designed to work as a unit. The substitution of another type or brand of element supposedly "just as good" may be worse than no filter or not do a good job. Be sure you buy the factory recommended replacement element.

### FUEL:

- (1) Purchase fuel only from a reputable supplier.
- (2) Have fuel delivered directly from tank wagon to fuel tank if possible. Otherwise use a storage tank with a provision for draining water and sediment.
- (3) Drain water and dirt out of sediment traps daily.
- (4) Change filter elements at regular intervals as recommended by the manufacturer of the machine.

### LUBE OIL:

- (1) Use the type and viscosity of oil recommended by the manufacturer of the machine.
- (2) Change oil and filter elements at regular intervals as recommended by the manufacturer of the machine.
- (3) Store the oil in a clean dry place and keep the opening closed tightly to prevent entrance of dirt and moisture.



**BRANDS** *are important!*

**Cattle are branded primarily to prove ownership.**

But, experienced cattlemen and livestock buyers know that some brands are always found on higher quality animals.

These brands come from better feed and water,  
from better breeding stock, from better handling.

The HAZARD brand on a reel of wire rope is your assurance of quality—  
quality backed by wire rope manufacturing experience  
dating back to 1845. Next time specify HAZARD.

Remember—**"Brands are important!"**



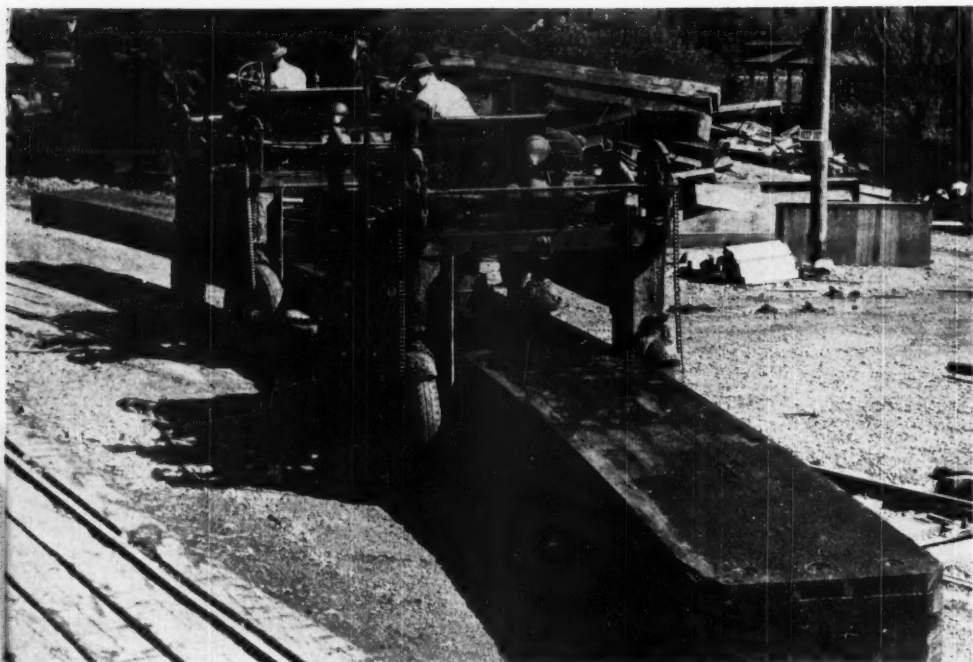
# ACCO

*In Business for Your Safety*

**AMERICAN CHAIN & CABLE**  
HAZARD WIRE ROPE DIVISION

TRADE  
MARK

Wilkes-Barre, Pa., Atlanta, Chicago, Denver, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, San Francisco, Bridgeport, Conn.



Two lumber carriers move creosoted 8-ton half-section for erection of . . .

## Glued Laminated Timber-Arch Bridge

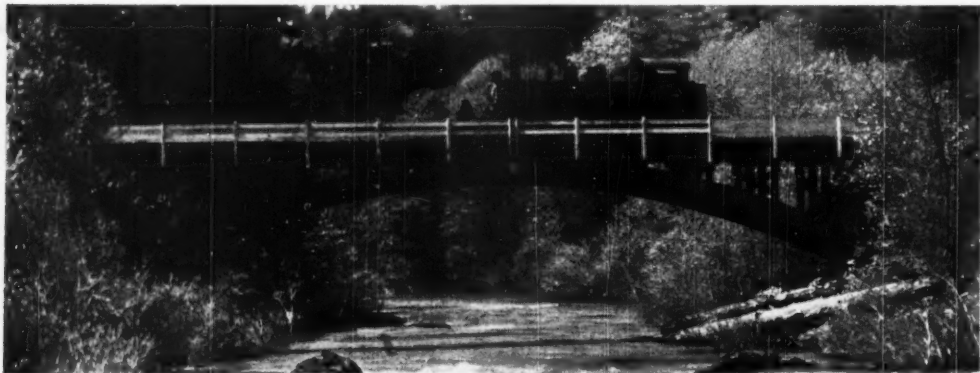
ALTHOUGH still a comparatively new process, treatment of a glued laminated bridge with creosote has proved successful without weakening of the glue line. Fabricated by Timber Structures, Inc., of Portland, the timber-arch bridge re-

placed an old untreated one across Culp Creek, near Eugene, Ore.

The bridge, fabricated for and installed by Bohemia Lumber Co., is a 120-ft. two-hinged timber-arch structure for rail, automotive and foot traffic. The creosote applica-

tion does away with the old covered-bridge method of protection from weather, thereby eliminating the additional cost and weight of sidings and roof.

Situated near the Bohemia Co.'s mill, the structure will chiefly car-



UPSTREAM VIEW of 120-ft. creosoted structure, with logging engine crossing. Rise from bottom of arch to deck is 20 ft.



LOGGING RAILROAD crosses bridge on 16x18-in. stringers at center; side stringers, 8x18-in., carry footwalks and auto traffic.

ry lumber trains and logging trucks. Rock walls of the gorge form ideal supports against arch thrust. Four separate arches support the stringers for the bridge; the outer two 8x18-in. timbers, and the inner two 16x18-in. timbers placed almost directly beneath the rail tracks to support the major part of the live load. The deck is planked solid to rail level.

Arches were built in half-sections, weighing 8 tons each and connected with moment splices at the crown. Structural members were creosoted with pressure treatment by Max J. Baxter Co. at Eugene. G. Edward Jacoby, chief engineer of the Eugene district for Timber Structures, Inc., was in charge of design under Ralph Fulbright, district manager.

## Massachusetts to Try Rubber Roads

TWO 1,000-FT STRETCHES of road in Massachusetts were treated with rubber in an experiment to determine their ability to stand up under constant freezing and thawing throughout this winter.

The cost of laying the 1,000-ft strips with 5 to 10% rubber added to bituminous concrete was about \$9,000, slightly above the normal cost of a regular bituminous concrete job. It is hoped that the

rubber will prevent eruptions, as has been proved in the Netherlands and Belgium in recent years.

Advocates of the new rubberized treatment of roads claim a high anti-skid quality, as well as comfort and durability. As a further mark in impartiality in methods, one section was laid with a powdered type of rubber and the other with an emulsified mix. Results of the tests will be announced soon.

## 1950 Whiteman Power Buggy



You can now use a Whiteman Power Buggy for pouring concrete all the way up to your top floors.

**DUMP CONTROL...** A geared control enables operator to make partial dump and return balance of load to position, a very desirable feature not available in competitive units.

**BIGGER BUCKET...** Now 13 cu. ft. or 2,000 lbs. per load.

**MORE POWER...** Now 7½ horsepower, 4 cycle, air cooled motor. Power to skim over the ground, or climb steep grades (20°) fully loaded.

**MORE SPEED...** Now up to 16 miles per hr. — forward or reverse.

**STRONGER FRAME... GREATER STABILITY...** Lower load center of gravity—wider wheel tread with dual tires. Shorter wheelbase—only 42"—permitting use on standard 5' runways.



### OTHER SPECIFICATIONS

Overall length 82". Overall width—single wheels 36"; duals 44". Wheels, pressed steel, split rim (all interchangeable). Tires, 400-8 (wheelbarrow size). Drive, automatic clutch and variable speed changer. Steering, full 360° rotating drive mount. Ball bearing support. (Turns in its own radius.) Brakes, contracting on load wheels.

WRITE FOR MORE DETAILS

**Whiteman**  
**MANUFACTURING CO.**  
3249 Casitas Ave., Los Angeles 26, Calif.

# 55 Allis-Chalmers Tractors and Motor Graders

## SETTING SERVICE

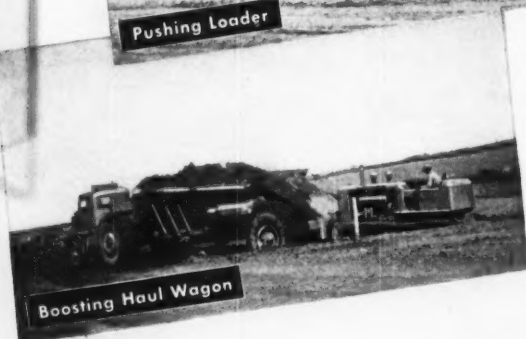
42 HD-19 Hydraulic Torque Converter Tractors



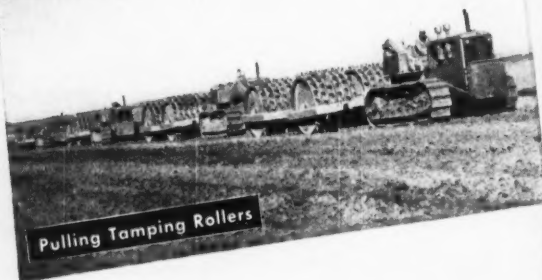
Leveling Fill



Pushing Loader



Boosting Haul Wagon



Pulling Tamping Rollers

12 Model AD Motor Graders



Maintaining Haul Road



Sloping Bank

**"SEEING IS BELIEVING"**  
Ask your Allis-Chalmers  
Dealer for a demonstration



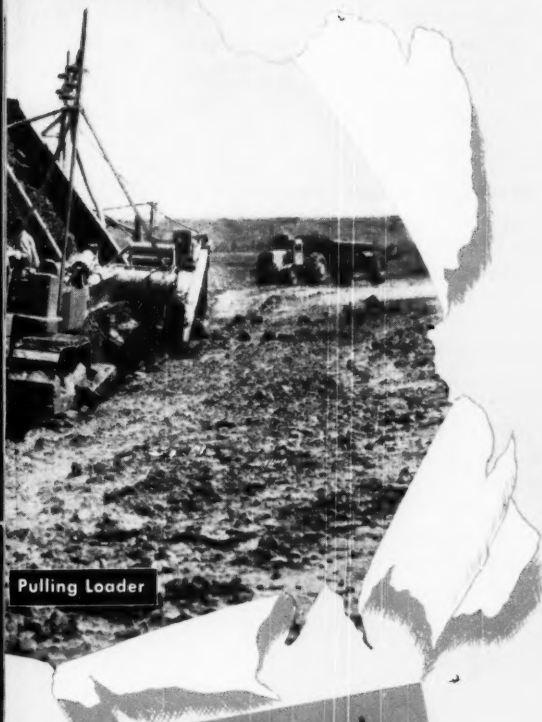
# RECORD

for **PETER KIEWIT SONS' CO.**  
and  
**MORRISON-KNUDSEN CO.**  
on their 18½-million-yard Garrison Dam job  
in North Dakota, World's Largest Rolled-  
Earth Fill Dam.

Fleets of A-C's have set a terrific pace since early in 1949 on this 20-hour-a-day, six-day-a-week job. Production during good weather hit 100,000 yards and more a day! YET DOWNTIME HAS BEEN MUCH LESS THAN THE CONTRACTORS ANTICIPATED—based on previous earth-moving experience.

This outstanding service record again demonstrates that A-C equipment is built to take it. Proves again that extra production time is gained through such advantages as simplified adjustments and repairs . . . electric starting . . . quick, easy removal of major assemblies . . . interchangeability of many GM engine parts on all makes and models of A-C diesel tractors and motor graders. PLUS extended lubricating periods — 1,000 hours on truck wheels, idlers and support rollers.

For more production, for less upkeep, think of Allis-Chalmers when you think of road-building equipment.



Pulling Loader

Model HD-5 and Tracto-Shovel



Loading Oversize Rock

# ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.  
Originator of the Torque Converter Tractor

# There's no Secret about the bigger performance of a

## BAY CITY



There is no secret about BAY CITY bigger performance. A check of specifications shows the many outstanding advantages that mean larger profit, lower maintenance and easier operation. Here are a few advantages so you can make your own comparison.

### LONG, WIDE CRAWLERS

A firm footing means added stability for greater output — faster operation.

### CAST BASES AND SIDE FRAMES

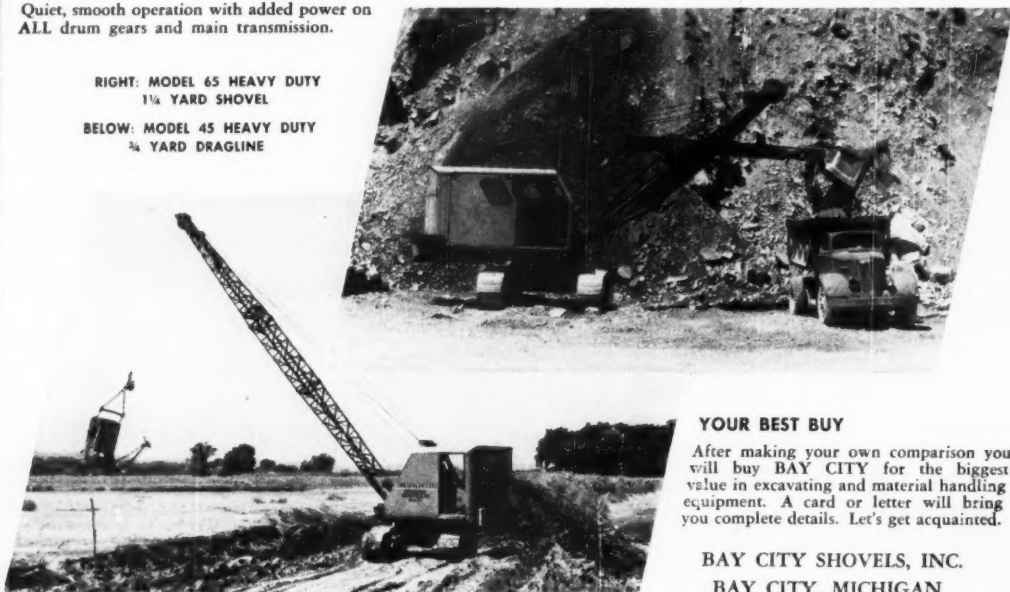
Alloy steel castings give strength and rigidity to maintain alignment of all machinery.

### HELICAL GEARS

Quiet, smooth operation with added power on ALL drum gears and main transmission.

RIGHT: MODEL 65 HEAVY DUTY  
1 1/4 YARD SHOVEL

BELOW: MODEL 45 HEAVY DUTY  
3/4 YARD DRAGLINE



### BALL BEARINGS

Anti-friction bearings throughout machinery, in drums and shafts—yes, even to boom point sheaves means reduced maintenance.

### POWER CLUTCHES

The E-Z booster clutches utilize engine power to set main clutches and provide unexcelled ease of operation.

### INDEPENDENT CHAIN CROWD

A one-piece chain transmits engine power to dipper more effectively and gives wide working ranges.

### PIN-CONNECTED BOOMS

Means quicker change in boom lengths to meet varying job conditions.

### CONVERTIBILITY

Change front end attachments quickly and easily—tandem drums provide best cable lead for any work.

### SIMPLICITY OF DESIGN

Compare and you will know why this means reduced maintenance and low-cost operation.

### YOUR BEST BUY

After making your own comparison you will buy BAY CITY for the biggest value in excavating and material handling equipment. A card or letter will bring you complete details. Let's get acquainted.

BAY CITY SHOVELS, INC.  
BAY CITY, MICHIGAN



# BAY CITY



SHOVELS • CRANES • HOES • DRAGLINES • CLAMSHELLS

# Present and Accounted For...A PAGE OF PERSONALITIES



TWO VICE-PRESIDENTS OF F. H. McGraw and Co. have been elected to board of directors of that organization. They are Frederick J. Mayo (left) and Donald W. Neville, from New York and Chicago offices.



Mayo joined engineering-construction firm on Bermuda Naval Air Station in 1941. Neville's outstanding contributions in construction field during war earned him Meritorious Civilian Service award.



LEON B. KROMER, JR., former Byrne Organization Labor Relations Director and Labor Relations Assistant to Chief, Bureau of Yards and Docks is now Labor Relations Advisor for Merritt-Chapman & Scott Corp.



COL. E. P. KETCHUM, CE, USA, added another chapter to his diversified army career when he assumed command as District Engineer of New York District, succeeding Brig. Gen. W. W. Wanamaker (right) who retired after 31 yr of active



service with Corps. To prove adage that old soldiers never die, Gen. Wanamaker has been appointed executive director of New Jersey Turnpike Authority to direct its administrative and executive affairs, as established by the Turnpike commissioners.



WHEN he took over as Navy's new chief of the Bureau of Yards and Docks, Capt. Joseph F. Jelley, Jr. also resumed his wartime rank of Rear Admiral. In 1946, at 42, he was youngest man to hold this active rank in Navy.



NEWLY-APPOINTED HEAD of Turner Construction Company's Philadelphia office is H. A. Schroedel, former Operations Manager there. Mr. Schroedel, who was also elected a Vice President of company, succeeds E. R. Bear who retired recently.



LARGEST CHAPTER of Associated General Contractors, that of Southern California, has elected Donald E. Reed, partner of Stanton-Reed Co., as its president. He will hold reins over more than 300 contractor members in chapter.



NEW FIELD ACTIVITIES DIRECTOR of American Road Builders' Association Highway Contractors Division is Shipley D. Burton. In his job of assisting Burt Miller, Division's managing director, he will give additional services to contractors in field.

# VERSATILE PROFIT-MAKER

## Labor Notes...

(Continued from page 59)

employed for at least 30 days by one or more contractors in the group covered by the union contract. (This refers to the rule that a valid union shop contract may require a worker to join the union 30 days after he is employed as a condition of keeping his job).

(3) Handle in normal fashion all cases which, despite the considerations allowed in Points 1 and 2, involve unfair labor practices under the Taft-Hartley Act."

This would allow both the unions and contractors to operate legally without legalizing the closed shop, and allow them to operate under present laws for valid union shop contracts.

The only dissenting voice so far is that of Burton F. Miller, managing director of the Contractors' Division of ARBA, who claims that the highway construction industry should be recognized as a separate entity and that any proved deficiencies in the Taft-Hartley Act should not be corrected by administrative decisions, but by remedial legislation.

## Board of Education Not an Employer Under T-H—NLRB

The Board of Education of the City of Owensboro, Ky., recently let a \$220,000 contract for erection of a school building to Al J. Schneider Inc. of Shively, Ky., a union concern. They also let a direct \$13,295 electrical contract to an alleged non-union firm, the Frank Abrams Electric Co. of Owensboro.



When Abrams' men appeared to wire up a switch in Schneider's tool shanty, the International Brotherhood of Electrical Workers AFL (Local 16) sent a picket to the job and Schneider's men put down their tools and left the job. Schneider charged IBEW induced his men to strike in order to force the Board of Education to cancel Abrams' contract.

In this particular case the trial examiner asked that the case be

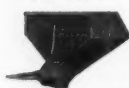
## SCOOP MODEL "C"



LIFT FORK



CRANE BOOM



CONCRETE HOPPER



FERTILIZER FORK

## One machine—6 jobs

Built at the request of contractors, the Wagnermobile Scoop Model "C" saves time, labor costs by its many efficient uses.

- Transports, elevates and pours concrete.
- Shovels and loads dirt, etc.
- Lifts and stacks lumber and other materials.
- Handles fertilizer, hay and straw.
- Lifts heavy equipment.
- Reaches extra height.

### Attachments:

- $\frac{3}{4}$  cubic yard concrete hopper.
- Scoops in 5 sizes.
- Lift fork with 2, 3 or 4 prongs.
- Special fork with tines for fertilizer, or hay.
- Crane boom.
- Track extensions up to a total of 26 ft.

These six attachments, quickly changed mean profit on the job. Wagnermobile Scoop helps you complete contracts faster.

Hydraulic controls.

Power steering—maneuverability.

Planetary drive—more power.

4 speeds forward, 4 speeds reverse.

Loading is easier, more practical. High ground clearance and shorter turning radius.



Lifts 4,000 pounds. Hoisting power is taken from the front of the engine to permit uninterrupted hoisting.

DIESEL POWER AVAILABLE

We reserve the right to make improvements in design and specifications without notice.

## MIXERMOBILE MANUFACTURERS



6855 N. E. HALSEY STREET, PORTLAND 16, OREGON



dismissed on the grounds that it was a primary boycott against the non-union outfit and not a secondary boycott. The NLRB unanimously agreed and further strengthened its decision by declaring that the Board of Education could not be considered an "employer" under T-H since:

(1) "—Kentucky courts have held that the District Boards of Education exercise a state function, are composed of state officers, and hold state property."

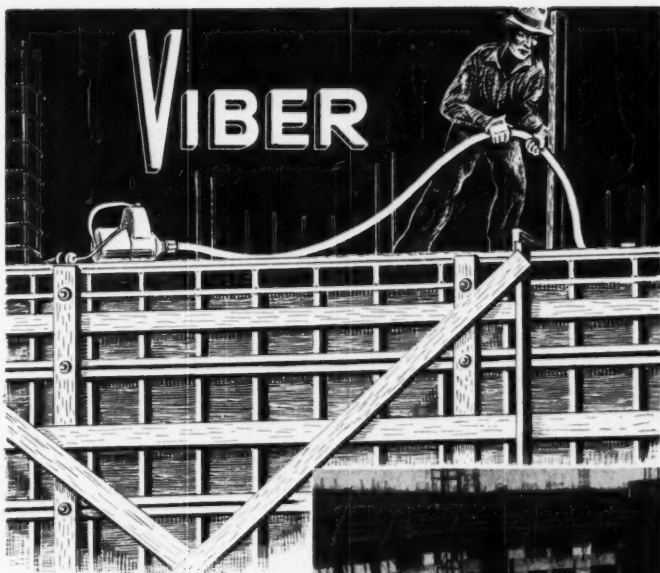
(2) "—courts in other jurisdictions have declared school districts to be political subdivisions of the state."

(3) Taft-Hartley Act excludes from its definition of "persons" such agencies as "the United States or any wholly owned government corporation, or any Federal Reserve Bank, or any state or political subdivision thereof."

## One Employee Can't Make A Strike — 100 Can

The quitting of work by a single employee on a building project was not a strike, said NLRB (Denver Building & Construction Trades Council 82 — NLRB No. 137). The union business agent asked the man to quit because work was sub-contracted to a non-union concern on the union's unfair list. The employer had charged a strike, but the Board ruled that it would have to be the combined effort of at least two employees because of the use of the plural number in the language of that section.

However, when more than 100 electricians quit work simultaneously on the Oak Ridge Project for the AEC after a non-union contractor was hired to install lighting fixtures in opposition to a union official's request, (Roane-Anderson Co. 82—NLRB No. 79) the stoppage was held to be a secondary strike with the object of forcing their employer to stop doing business with another employer. The fact that the union made no demands and maintained no picket lines did not disprove a strike. Neither was it disproved when employees said they quit for better jobs, since 67 applied for their old jobs after a district court issued an injunction and the union stated that it was not encouraging a work stoppage.



## Now in use on one of the largest architectural concrete construction jobs in the United States

New architectural and engineering techniques are being pioneered on the Metropolitan (Parklabrea) Housing Project in Los Angeles.

**VIBER SELECTED...**One of the five unusual features of this tremendous project is an effort to reduce time, effort and costs in concrete placement operations. The exclusive use of Viber equipment on a project that is testing new construction methods and techniques illustrates the regard engineers and construction men have for this interchangeable line of concrete vibrators.

**VIBER RUBBER TIPS...**Viber's development of rubber tips has reduced damage to expensive forms...an important phase of architectural construction costs.

**GOVERNMENT AND RESIDENTIAL HOUSING...**The vast program of Government and residential housing now in planning and process is just one of the fields in which Viber plays an important roll.

For further information on the complete line of Viber Interchangeable Vibrators, please wire or write



\$40,000,000 Parklabrea Housing Project, Los Angeles

# VIBER

**COMPANY** CONCRETE VIBRATORS SINCE 1931  
Dept. 19, 726 South Flower Street, Burbank, California.

# BUILT TO

## The Power Graders That Have Everything



"88-H"—a new model which brings to the field of motor graders of medium size the extra traction and power-at-the-blade of all-wheel drive, and the unequalled maneuverability of all-wheel steer.

The Austin-Western Power Grader of today owes its matchless performance to *completely effective* use of power. Through All-Wheel Drive, every pound of weight is a powered pound, harnessed to a driving wheel—and contributing every ounce to tractive effort. This tremendous traction—perfectly directed and controlled through All-Wheel Steer—provides superb earth moving ability, and mastery of all types of work. Additional values are offered by specialized attachments, which greatly increase the usefulness and day-in and day-out profit making ability of the graders.



"99-H"—out in front of the motor grader parade since the original "99" of 1937. Popular with contractors and highway departments for its all-around performance, under all conditions, in all seasons.



MASTER "99"—another new model, combining all of the time- and money-saving features of the "99-H" with the extra power, traction and road speed of its 100 horsepower engine.

## Model "40" Sweeper



Fast, maneuverable, and economical in operation. No troublesome, expensive conveyor or elevator to keep in adjustment and repair—dirt is thrown directly into the 2-yard hopper. Can be equipped with



either right-hand or left-hand gutter broom or both. The Leaf Broom attachment simplifies the collection of heavy accumulations of leaves.

# OUTPERFORM

## Crushing, Screening and Washing Plants

PORTABLE...STATIONARY



The AUSTIN-WESTERN LINE includes Jaw Crushers and Roll Crushers in a wide range of sizes; plus matching screens, elevators, conveyors and bins. Exclusive features increase output, assure constant operation and reduce maintenance costs. Skilled engineering characterizes each

and every Austin-Western crushing, screening and washing plant, which is tailor-made to a particular production problem. We would welcome the opportunity to discuss yours.

## "Badger" Convertible Shovel

"SWINGS LESS TO MOVE MORE"



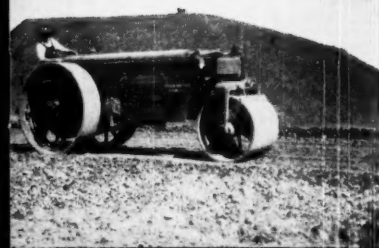
With the Badger, only the bucket, boom, turntable and mast swing. The heavy main deck, engine, transmission and main frame are STATIONARY—to counterbalance heavier loads and avoid objectionable tail-swing.

The Badger makes more swings per minute, day, month and year... wastes no fuel or power swinging extra weight... digs the hardest "diggable" material... can work in closer quarters.

## Road Rollers

**3-WHEELED ROLLERS** have full length side plates for maximum rigidity; low center of gravity for smooth operation, and hydraulic power steer. All may be had with gas or diesel engine.

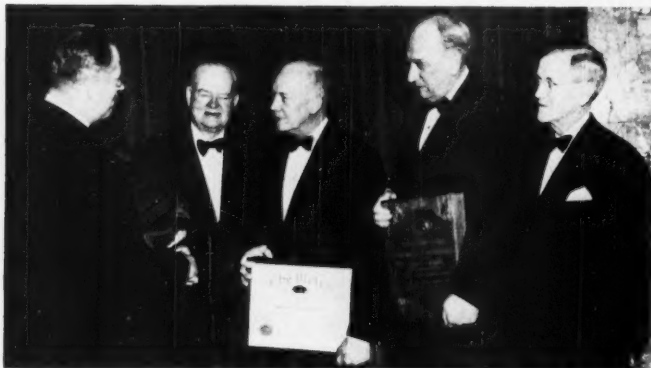
**TANDEM ROLLERS.** Variable weight type—in 5-8 ton and 8-10½ ton sizes. Important improvements provide exceptionally smooth and steady performance on precision jobs.



DIVISION OF ROAD MACHINERY  
**Austin Western**  
SINCE 1929



## Hoover and Dougherty Receive Moles' Awards



MOLES PRESIDENT Carlton S. Proctor presents Award plaque to Herbert Hoover. Present are: General Dwight D. Eisenhower, made an honorary member; Richard E. Dougherty, Member Award recipient; and William A. Durkin, who presented Dougherty's plaque.

MORE THAN 1,000 of the country's foremost construction men gave sustained applause to Herbert Hoover and Richard E. Dougherty as they received the tenth annual Moles' Awards for "outstanding

contribution to construction," Feb. 9 at the Waldorf-Astoria in New York. At the same dinner meeting, General Dwight D. Eisenhower was made an honorary member of The Moles—an association of leaders in

the heavy construction industry.

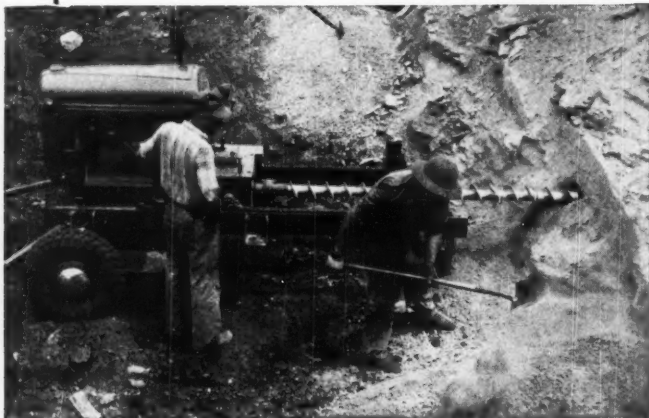
Former President Hoover, winner of the non-member award, was honored as "Statesman, humanitarian, engineer: in recognition of his superlative leadership in advancing human dignity, individual enterprise and personal freedom; the foundations of a better world." Mr. Dougherty, a past president of ASCE and a retired vice-president of the New York Central, was given the Moles' member award "in recognition of his engineering leadership and his tireless and unselfish service in promoting public safety, in advancing transportation standards and in urban planning and development."

Moles president Carlton S. Proctor, who conferred the society's first honorary membership on General Eisenhower, said it was "evidence of our desire to share in the homage and gratitude of this and future generations to the man who, as the greatest war leader of all times, brought victory to us and our allies."

## Parmanco

HI-SPEED HORIZONTAL  
D R I L L S

New Traction Drive with Forward and Reverse



**THIS UNIT IS  
DELIVERING  
6-inch shot-holes  
READY FOR LOADING  
at better than  
A FOOT A MINUTE!!**

The new Parmanco Hi-Speed Horizontal Drill is completely redesigned around a 40 h. p. engine with four drilling speeds which, in field tests, has cut one-third off the footage drilling time—a cost-per-drilling-foot saving that we are passing on to the strip mine operator and contractor at no increase in our price. In addition, the drill is equipped with a starter and generator, dual type front wheels, truck type rear axle with mechanical brakes and a traction drive with both forward and reverse.

• For both Mines and Construction

**PARIS MANUFACTURING COMPANY • PARIS, ILLINOIS**



# FOR SOIL COMPACTION WHERE ROLLERS CAN'T GO!

*The Barco Pegson Rammer*



This self-contained, portable rammer is specially adaptable to tamping close to abutments and other wall structures, in narrow ditches and trenches, thus eliminating troublesome settlement areas. Actual field tests, certified by Government agencies, have proved that one man using

the Barco can do the work of five who use conventional equipment! This economical machine is easy to operate—no lifting, no strain, no vibration. A slight tilt on the handle will "walk" the Barco wherever you want it to go. Don't tie up your funds in heavy equipment—order Barco today. Write for free demonstration or catalog to Barco Manufacturing Co., 1812D Winnemac Avenue, Chicago 40, Ill.



# BARCO *Gasoline Rammer*

In Canada: THE HOLDEN CO., LTD., MONTREAL, CANADA

FREE ENTERPRISE . . . THE CORNERSTONE OF AMERICAN PROSPERITY



# CHAMPION

## *the NEW*



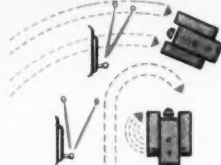
**Positive all-weather starting** on gasoline, with quick change-over to full diesel operation, all from the seat.



**Instant speed change** up or down one speed, or stop, without declutching. Planet Power drive does it!



**Separate reverse lever** for quick change of direction. The tractor moves in the direction the lever is moved.



**Planet Power steering** puts turns with power on both tracks, feathered turns and pivot turns at your fingertips.

### HERE ARE SOME OF THE CHAMPION'S EXCLUSIVE FEATURES

**Self load and run** with scrapers of 17-yard capacity—and shift gears on-the-go with the rolling load.



**Cut waste shifting time** out of work cycles, provide the best speed for every operation, 8 speeds in each direction!



**Work on grades up to 100%.** Its power, ground contact, balance and lubrication are right for licking any grade.



**Handle heaviest loads** on gradual turns as easily as straightaway because both tracks are powered in the turn!



## "There Is Nothing Like The TD-24. It Can Out-Push Any Tractor On The Job."

"Here is the Champion of Crawlers," owners will tell you, "the tractor that will pull down your dirt moving costs."

Contractors and operators who have observed or operated the new International TD-24 diesel crawler are spreading the news. Here is a tractor that out-works and out-performs every other crawler known to the industry!

Operators compete with each other from Florida to Alaska to get "the big red devils," the TD-24's, assigned to them. They'll tell you no other tractor can compare with the TD-24 for ease of operation or work capacity!

# of Crawlers

## INTERNATIONAL TD-24

Comfortable to ride, powerful, fast, safe and economical to operate, the TD-24 is revolutionizing ideas of what crawler tractors can or cannot do on the big jobs.

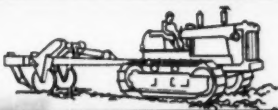
Regardless of what equipment you now use, visit your International Industrial Power Distributor and get a TD-24 demonstration. See for yourself what the TD-24 can mean to your operations in shortened time, reduced costs, extra profits.

INTERNATIONAL HARVESTER COMPANY • Chicago



# INTERNATIONAL INDUSTRIAL POWER

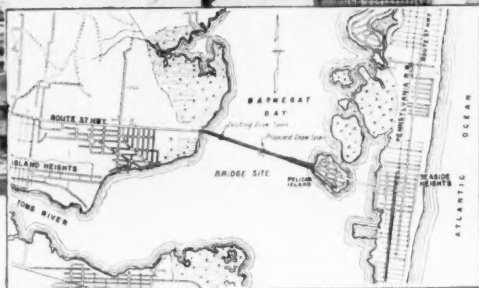
*Tune in "Harvest of Stars" with James Melton, Sundays, N. B. C.*



# BARNEGAT BAY BRIDGE

—A **LINK-BELT SPEEDER** JOB!

**6** USED BY  
**OLE HANSEN & SONS**  
**ON MILE-LONG SPAN**



Above: A K-370 and a K-25 operating on barge erecting steel on approach to bascule span.

Location of new bridge across Barnegat Bay, Ocean County, New Jersey.



Hansen's fleet of Link-Belt Speeders includes HC-90 truck-mounted Shovel-Cranes, as shown here, loading 20 ton plate girder 89 ft. long, on trailer for transporting to bridge site.

Crawler or wheel-mounted, the versatile Link-Belt Speeder is a machine of many uses, giving many opportunities for turning a good profit.

Outstanding suitability of Link-Belt Speeder Shovel-Cranes on large construction projects is well illustrated in the performance of 6 machines, on the Barnegat Bay Bridge. Ole Hansen & Sons, general contractors, have used only Link-Belt Speeders for the past 16 years, and now own ten.

Building 68 piers, including coffer dams, placing 19,000 yards of concrete, setting 10 million pounds of steel, and driving 104,000 lineal feet of timber pilings, were all done with Link-Belt Speeder cranes.

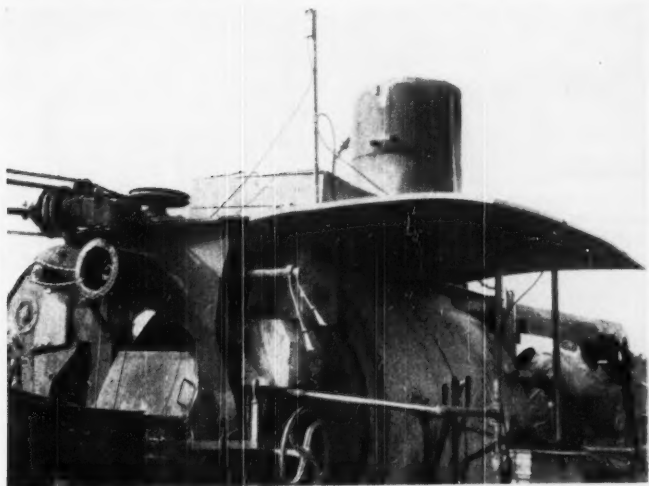
Power, speed, easy control, low operating costs, all show Link-Belt Speeders to be money-makers on every type of construction.

11,763

## LINK-BELT SPEEDER

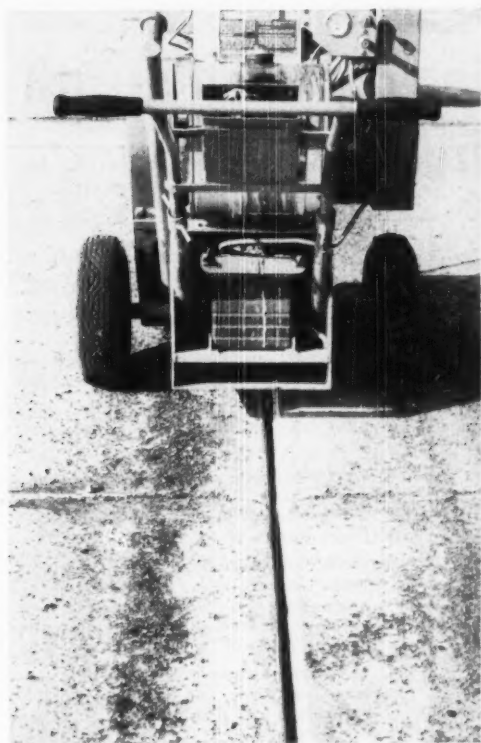




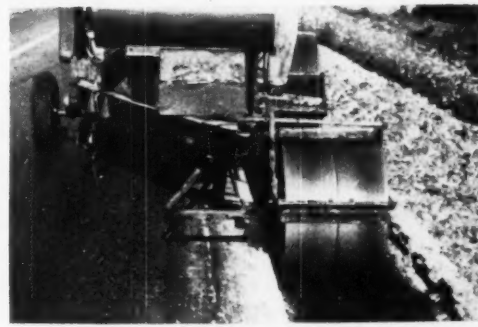


**TWO-WAY RADIO ON PAVING MIXER** supplying concrete for North Carolina highway construction between Lexington and Thomasville makes possible instant communication between Koehring

34-E unit, batching plant of Ballenger Paving Co. and field office in Lexington. At right mixer foreman discusses progress of work with contractor's office.—Portland Cement Association photo.



**JOINT CLEANING** on concrete highway or airport runway pavement is done by self-propelled Tennant grooving machine, powered by gasoline engine and equipped with 12-in. dia. revolving (2,400 rpm.) steel cutter-head which removes old bituminous seal material and cuts clean groove for new seal. Width of cut may be varied from  $\frac{3}{8}$  to  $\frac{1}{4}$  in.



**PAVEMENT WIDENING** involves use of special trenching equipment (top photo) to excavate earth shoulder to depth and width required. Cross conveyor moves spoil out of way to side to leave cut ready for rolling and placement of widening material. For compaction of asphaltic mix in widened strip special narrow-wheel roller (bottom) is used.—Asphalt Institute photo.



This 145-horsepower Series F-7 Ford Truck has a Gross Vehicle Weight rating of 19,000 lbs.

## "We've cut sand hauling costs 30% with our Series F-7 Ford Truck" —SAYS F. M. LeGATE, Jr. JACKSONVILLE SAND CO. JACKSONVILLE, FLA.

"We were faced with mounting hauling costs because of increasing length of haul and greater traffic congestion," reports F. M. LeGate, Jr. of the Jacksonville Sand Company. "Then we changed to a series F-7 Ford Truck.

"This new 145-horsepower Ford has done the job. Hauling six yards of sand instead of the four yards hauled by our older model trucks, it has cut our cost per yard by 30%."

In any line of business, *Ford Trucks do more per dollar!* They go easy on expense for gas, oil and repairs. They're strong on work output. Ford Trucks are built with big reserves of strength and power to handle big loads at low cost.

Let your Ford Dealer show you which one of over 175 models is the one right truck for your job.

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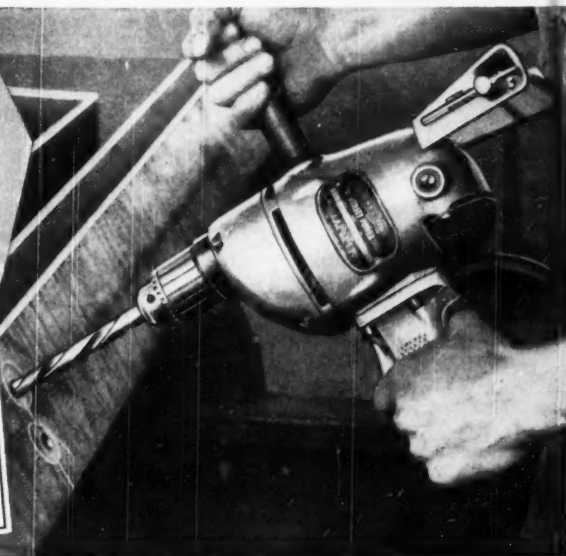
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# 1950 . . .

## *Our Industrial Machine Is Running Down*

**I**n his recent Economic Report to Congress President Truman chalked up a constructive advance in his economic reasoning. He pointed out that if we are going to attain the worth-while goal of a \$300 billion national income in the next five years, we must equip ourselves with more and better industrial tools. Of all the dynamic forces of expansion in America, he said, one of the most important is business investment.

That is fine. It is basic common sense. We have been saying that for years and we are glad to hear the President say it too.

But having hit this new high in his economic reasoning, the President failed to draw the right conclusion. He made the mistake of accepting the false conclusion that there is no shortage of business funds to pay for more and better industrial tools. "There are immense opportunities for business investment in nearly every segment of the economy," the President said, and further, "there are in general sufficient funds available to businessmen who want to seize these opportunities."

That just is not so — and the lack is not only serious; it can well be fatal.

It is a matter of the most urgent national importance that the President's recognition of the

need of more and better industrial tools should be followed by effective action. *That calls for changes in the national policies that are now blocking and, unless changed, will increasingly block business from meeting this need. If business cannot get enough new tools, the result will not be higher, but lower standards of living five years from now.*

The President should talk this matter of business investment over with Senator O'Mahoney, the Chairman of the Joint Congressional Committee on the Economic Report. Senator O'Mahoney would take to the discussion knowledge of the investment situation recently acquired through his conduct of a series of Congressional hearings.

If he told the President what he told the press during the course of these hearings, he would say, "the private capitalistic system is being seriously threatened by a lack of venture capital." That is in direct conflict with the President's conclusion that "there are in general sufficient funds available."

**This serious shortage of adequate investment in new plant and equipment is brought forth so that all of us can understand it by McGraw-Hill's annual survey of American industry's plans for investment in new plant and equipment in 1950, which has just been completed.**

*continued on next page*



## BUSINESS' PLANS FOR 1950

These are the major findings of the McGraw-Hill survey of "Business' Plans for New Plants and Equipment" in 1950. Made by the McGraw-Hill Department of Economics, the survey shows:

1. Industry—as represented by manufacturing, mining, transportation, and utilities—now plans to invest \$12.4 billion in new plants and equipment this year. This is 13% less than was actually spent last year.

2. Manufacturing industries alone plan to spend \$6.3 billion in 1950 for new facilities. This is also 13% less than they spent last year.

3. Manufacturers as a whole expect their 1950 sales volume to about equal 1949's.

4. Manufacturers will expand their capacity about 3% in 1950, under present

plans. The largest part of their funds, 65%, will go to replace and modernize existing facilities.

5. Profits and reserves are expected to provide 92% of the 1950 investment funds of manufacturing companies. These companies count on new common stock issues to provide less than one-half of one per cent of the investment funds they will need.

6. Two out of three manufacturing

A copy of a complete report on "Business' Plans for New Plants and Equipment" may be obtained by writing me at McGraw-Hill Publishing Company, Inc., 330 West 42nd Street, New York 18, N. Y.

companies review their investment plans monthly. Almost all companies go over them at least quarterly. The survey shows that companies changed plans rapidly during 1949 to meet changes in their prospects.

7. Other industries are also reducing their investment plans in 1950 by 13%. This coincidence arises from the fact that utility companies, notably the electric light and power companies, plan to spend only slightly less than in 1949. Railroads, on the other hand, are reducing their capital programs in 1950 by more than 40%.

The results of the survey, which are summarized above, show that American Industry—as represented by manufacturing, mining, transportation and utilities—is planning to spend 13 per cent less for new plant and equipment in 1950 than it did in 1949.

Since the rate of investment in new plant and equipment right now is apparently about 15 per cent below the rate for 1949, the present level of business investment may be relatively steady in 1950. That would relieve the fear, expressed by President Truman in his Economic Report, that "if the downward trend in business investment were to continue, our prospects for full recovery and continued expansion would be seriously endangered."

*BUT, at the rate of investment planned by American manufacturing industry for 1950, it would take 40 years to modernize thoroughly our present industrial plant and equipment. That would still leave undone the job of increasing it to meet the needs of an expanding economy of the kind sketched by President Truman in his message.*

In attaining even this rate of investment, the McGraw-Hill survey shows American business must rely overwhelmingly on its own profits, which have declined as the country has left the postwar boom behind it. Most American companies cannot sell new common stock except at ruinously low prices. Here is one case where gov-

ernment action is really needed to help business and help to keep a rising American standard of living.

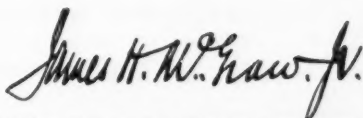
In order to get enough business investment to assure the "full recovery and continued expansion" sought by the President, our country needs:

**1. Lower taxes on business income so as to release more money for new plant and equipment.**

**2. Liberalized depreciation allowances on old plant and tools so that business can buy new equipment faster.**

**3. Repeal of the present double taxation of dividends which now are taxed once as corporation income and again as personal income.**

It is encouraging to have the President explicitly recognize the key importance of adequate business investment in providing steadily expanding prosperity. The next and most important thing to do is to make this recognition effective by discarding national policies which are blighting an adequate volume of business investment.



President, McGraw-Hill Publishing Company, Inc.



*GM Series 71 Diesels power a fleet of 30 Euclid Indian trucks working for S. A. Healy Co. on construction of 200-ft. high Neversink Dam.*

# Good Diesels keep good company

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Other HM Payloader advantages are four wheel drive on large earthmover tires for *real* traction and flotation, balance and stability, unmatched operator visibility and many others. Get the complete Payloader story from your Hough Distributor today or write The Frank G. Hough Co., 706 Sunnyside Avenue, Libertyville, Illinois.

*Send* for catalog covering the big Model HM 1½ yard Payloader or smaller sizes — the 1¼ yd. Model HL; the ¾ yd. HF; the 12 cu. ft. HA.



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# CONSTRUCTION EQUIPMENT NEWS • • A Preview of

By MELVIN DEAN, Equipment Editor



**Double-Duty Plant Produces Crushed Stone, Aglime, or a Percentage of Both, in One Operation**

Rock-It crushing and screening plant replaces two single units. It will produce crushed stone or aglime, or a percentage of both, in one operation. Capacities range from 60 to 80 tons per hr. Charging hopper and delivery conveyors are only parts that have to be removed to meet highway-transportation requirements. Features include:

Accurate gradation of finished product, centralized controls, low feeding height for shovel feed, and anti-friction construction throughout. The Rock-It plant consists of standard Cedarapid's products, and can be varied to meet specific needs. It is rubber-tire mounted for high-speed portability.—Iowa Mfg. Co., Cedar Rapids, Iowa.



**HIGHWAY PATROL PULL GRADER**—Small pull grader is equipped with an 8-ft blade. Constructed for rugged use, it features a wide range of adjustments. The No. 4 Hi-Way Patrol has an adjustable rear axle and trailer pole. It can be pulled by track or wheel-type tractors, truck, or a team of horses. Flat-spoke or rubber-tired wheels are optional. Information may be obtained from Caterpillar dealers or the manufacturer.—Preco, Inc., 6300 E. Slauson Ave., Los Angeles 22, Calif.



**COMPACTION ROLLER HAS SCALLOPED RIBS**—One-man self-propelled compaction roller has a series of five scalloped ribs at its outer circumference. Each rib consists of twelve 4-in-high scallops, staggered to provide a high point every 3 3/4-in. Spacing and slope are designed to provide maximum compaction with minimum lateral displacement. Unit can be converted to a conventional 12-ton 3-wheel-type roller. Power is provided by a 118-hp diesel.—Huber Mfg. Co., Marion, Ohio.

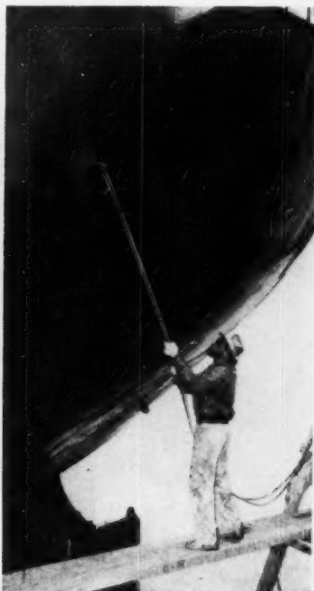


## New Machinery, Tools and Equipment That Will Help You on the Job

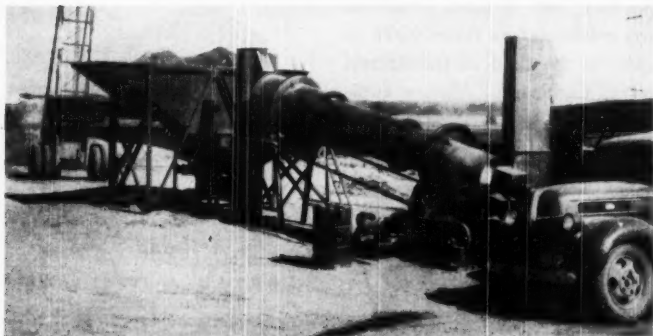


**HALF-YARD SIX-TON EXCAVATOR**—Half-yard excavator has a crane capacity of 6 tons at a 12-ft radius. It is convertible to all front-end attachments. Twin hook rollers on the Model 614 are equalized and mounted on front and rear of rotating frame. Automatic traction brakes

provide an internal-expanding friction-type locking device for both crawlers. Direct crowding action is provided by chain-crowd mechanism. GMC diesel or Chrysler 8-cyl gasoline engine is standard.—Unit Crane & Shovel Corp., 6305 W. Burnham St., Milwaukee 14, Wis.



**EXTENSION SPRAY GUN**—Remote-control painting is simplified with spray gun available in lengths from 4 to 12 ft. Nozzle permits spraying inside of pipes. Handles light paint to heavy asphaltic compounds.—Eclipse Air Brush Co., 390 Park Ave., Newark 7, N. J.



**CONTINUOUS HOT-MIX PLANT**—Model N-20 Monotrol plant has a capacity of up to 20 tons per hour. A special feature is that all functions are electrically operated from a single control panel. Volumetric feeder valve permits accurate proportioning of aggregates. Three-section rotating dryer prevents seg-

regation and can eliminate up to 100 percent of moisture. Cut-type rotary mixing screw in pugmill assures thorough coating of aggregate. Sectional construction permits rapid field assembly. For transporting, the largest section weighs 3,000 lb.—Wayne Crane Division, American Steel Dredge Co., Inc., Fort Wayne, Ind.



**TIES FOR MASONRY-FACED WALLS**—Special construction results in tie with thick copper covering, inseparably welded to strong alloy-steel core. Features include: Wide spread of V-Lok anchors greater area to studding and stress and strain is spread in two directions.—Copperweld Steel Co., Glassport, Pa.

# TWO GREAT NAMES

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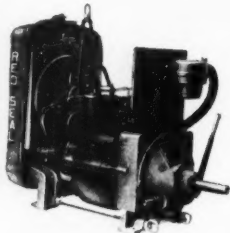


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► Elevating-grader attachment increases versatility of standard motor grader.

► Mowing machine cuts trees up to 8 in. in dia. It is powered by a 168-hp diesel engine.

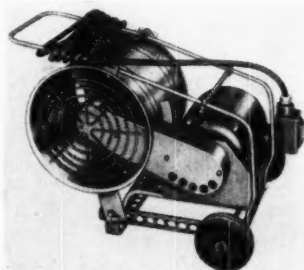
► Extensible leveling rod has endless scale band which provides direct readings of elevations without computations.

► Trailer has detachable gooseneck which is raised and lowered by cable-operated ram.

► Truck-mounted mixer is now available in a 5-6-yd size.

## TRACTOR-WHEEL ATTACHMENT

—Increased traction under conditions where rubber will not hold is the purpose of the Retracta-Matic tractor-wheel attachment. Once bolted to the wheel, it stays on, instantly and automatically ready for use when needed. Removing one safety bolt, opens it for instant use. Being retractable, its presence on the tire does not interfere with normal operation. Weight is 275 lb. per pair.—Ariens Co., Brillion, Wis.



## PORTABLE VENTILATORS—

Available with gasoline or electric power units and direct or belt drives, the MSA units can be used to provide both ventilating and cooling air. Air is conveyed through a 14-in. dia. 16-ft.-long canvas duct. Two-way air-flow feature permits the duct to be connected to either the inlet or discharge side of the fan.—Mine Safety Appliances Co., Braddock, Thomas & Meade Sts., Pittsburgh 8, Pa.



P&H REMOTE CONTROL—with this unit you can control all functions (even the horn) by electric push-buttons—from the operator's position inside the crane cab. All changes back and forth between conventional and remote control are instantaneous . . . no mechanical changes required.

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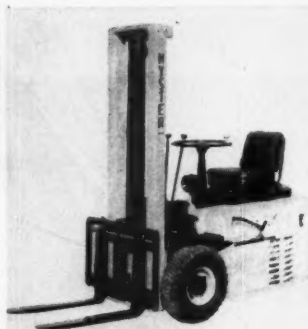
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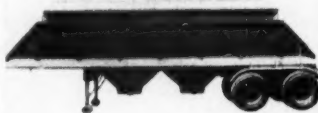
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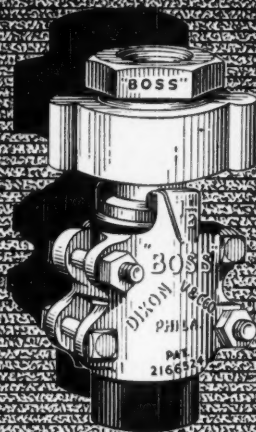
**ONETON LIFT TRUCK** — Model 20 lift truck is powered by a Wisconsin gasoline engine and has a lifting capacity of 2,000 lb. Improved, larger clutch provides smoother control and longer life. Uprights are mounted on an extension of the truck frame and are designed to pivot forward to the floor in such a manner as to lift the front wheels clear of the ground for changing tires or servicing power unit. Tilt control is accomplished through double-acting hydraulic cylinders. Features include: Easier steering, better braking power, lug-type pneumatic tires, and increased operator comfort. — **Hyster Co., 2921 N. E. Clackamas, Portland 8, Ore.**

**ELECTRIC SUBMERSIBLE PUMPS** — British-made submersible consists of a multi-stage centrifugal pump and a solid-coupled squirrel-cage-type ac induction motor. The Sumo pumps are made in six sizes, with capacities ranging from 4 to 2,000 gpm. Outside diameters range from 5.5/16 to 14 in. Electrical control may be arranged for hand control, oil break or push-button, or for fully automatic operation. — **Sumo Pumps, Inc., 1 Atlantic St., Stamford, Conn.**



**BOTTOM-HOPPER DUMP TRAILER** — Trailer is designed for bulk handling of granular and powdered materials having high angles of repose. It loads through manhole openings that are weatherproof when closed and discharges its load by gravity at controllable speed through hoppers in the bottom. Gross capacity is 820 cu ft, with individual modifications to meet specific needs. Dimensions: Nominal length, 29 ft; width, 96 in.; over-all height with 10.00 20 tires, 10 ft. 6 in.; and net weight, 11,080 lb. — **Gramm Trailer Co., Delphos, Ohio.**

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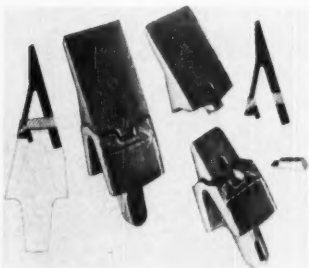
Main Office and Factory: **PHILADELPHIA, PA.**  
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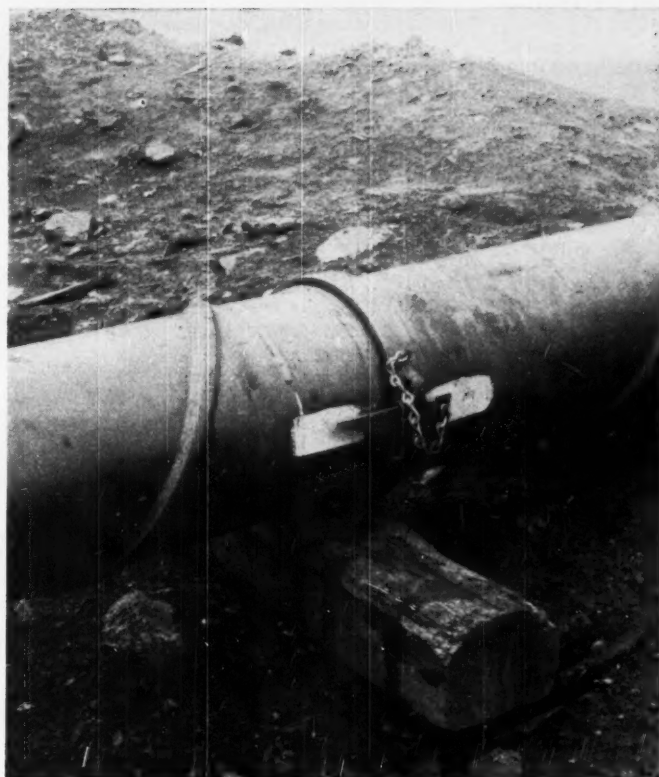
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Stand for holding welding handles also serves as a start-stop switch for the welding generator. Weight of electrode holder on arms of the Electro-Mizer breaks the circuit shutting off the machine. Picking up the electrode holder automatically starts it again, resulting in the arc-welding machine being used only when welding is being done. The Electro-Mizer can be connected to any motor-generator welder having push-button starting.—Hobart Bros. Co., Hobart Square, Troy, Ohio.



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The Naylor one-piece, positive type Wedge-Lock Coupling slips over the grooved or shoulder ends on Naylor pipe to provide the fastest and easiest method yet devised for connecting pipe. A hammer is the only tool needed. Joints can be made up with only one side of the pipe in the open. Other advantages include tight, leakfree joints; less power loss, smoother operation, more consistent delivery, long service life and high re-use value. Add to this, the outstanding performance of Naylor lightweight pipe and you have a perfect combination for construction service. Pipe sizes 4" to 30" in diameter—thickness from 14 to 8 gauge. Write for Catalog No. 44.



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## **Lincoln** \*Centralized Lubrication

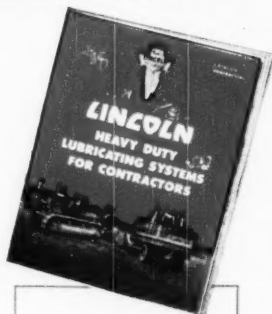
• Prior to the installation of the Lincoln \*Centralized Lubrication System on this Marion Power Shovel, hand lubrication had required a minimum of  $\frac{1}{2}$  hour at the beginning of the shift, and an additional  $\frac{1}{2}$  hour in the middle of the shift. During the 1 hour per 8-hour shift required for lubrication, not only was the shovel out of service, but in addition, three haulage trucks and the primary crusher were standing by, idle—non-productive time costs money.

• The Lincoln \*Centralized System now permits automatic lubrication of all 78 bearing points on the shovel without down-time—a 12% increase in productive time.

*\*Centralized Lubrication assures the application of the RIGHT LUBRICANT...in the RIGHT QUANTITY...at the RIGHT TIME.*

It insures against failure to contact inaccessible bearing points due to neglect or oversight, provides better bearing efficiency and reduces bearing wear due to faulty lubrication. The System eliminates the necessity for the shovel operator or maintenance man climbing into the shovel superstructure to lubricate those bearings located on the boom and safeguards against possible accidents.

*Lincoln Complete Heavy Duty Lubricating Systems for Contractors Are Distributed Nationally Through Leading Industrial Wholesalers Located in Principal Cities.*



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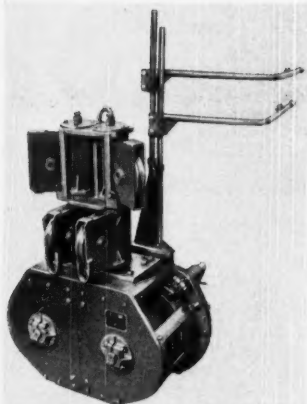
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**POWER CONTROL UNITS**—Line of power control units is designed for crawler tractor or other cable control use. The line includes three models—Model C-90D, double drum, for tractors of 50 hp and up; Model C-50D, double drum, for tractors up to 50 hp; and Model C-50S, single drum, for tractors up to 50 hp. A special unit, the Model C-90DL for logging and extra-heavy-duty work, features extra-heavy-duty clutch and cone, and special drum and control guards for added protection. Features include: Heat-treated cast-steel cases and covers; heat-treated alloy-steel gears; roller or ball bearings on all turning parts; gear ratios of 5:1 to 12:1; swinging fairleads on Models C-90D and C-50D; and adjustable control levers.—Kay-Brunner Steel Products, Inc., Equipment Division, 2121 Elm St., Los Angeles 65, Calif.



**STAINED STRIP DIVIDES HIGHWAY**—Stained strip on Hillsboro Highway leading into Tampa, Fla., separates opposing traffic lanes for a distance of three miles. Color is obtained by using Kemiko stain, a product said to penetrate into the pores of the concrete, and to become a part of it, resulting in a rich, black, permanent color which will withstand heavy traffic and varying climatic conditions for many years. (Highway was constructed by Brinson Construction Co.) Kemiko stain is produced by Rohloff & Co., 918 North Western Ave., Hollywood 27, Calif.

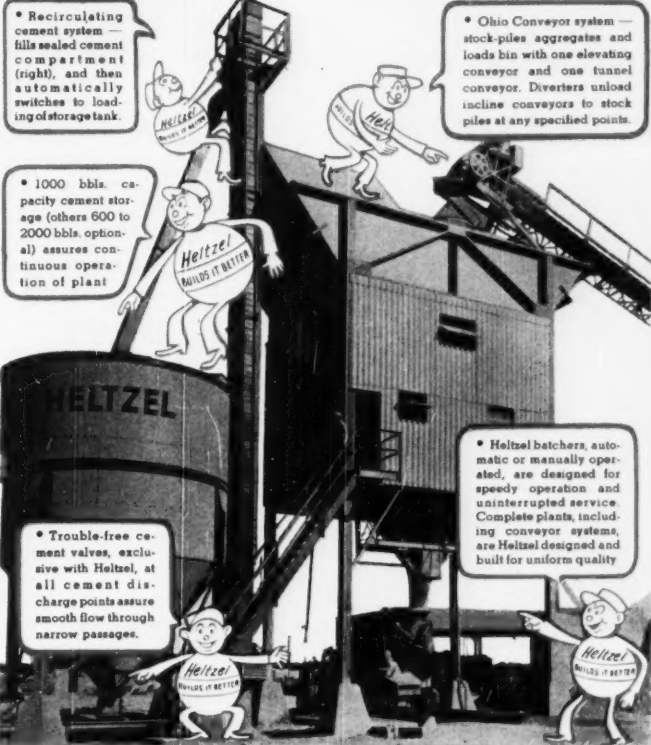


# HELTZEL

## SUPERIOR *Batching Plants*

• More efficient batching plants will effect savings for you in operation and plant costs. Heltzel's specialized engineers work out your specific problems on both stationary and portable installations, ranging in capacities from 30 to 500 tons. Why not let a Heltzel representative explain exclusive features and Heltzel's better construction.

- CENTRAL MIX PLANTS
- TRANSIT MIX PLANTS
- BULK CEMENT PLANTS (Portable and Stationary)
- AGGREGATE BATCHING PLANTS (Portable and Stationary)
- CONCRETE BUCKETS



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**HELTZEL STEEL FORM & IRON COMPANY**  
WARREN, OHIO, U. S. A.

Please send information regarding:

Stationary Batching Plants ☐ Road and Airport Forms ☐  
Portable Batching Plants ☐ Curb and Gutter Forms ☐

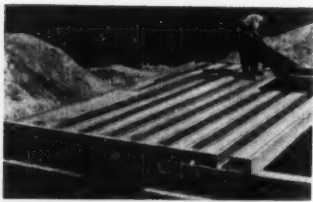
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**HELTZEL** STEEL FORM & IRON CO.  
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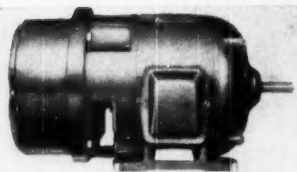
#### STEEL CELLULAR PANELS—

Construction of sub-flooring is speeded by use of Fenestra steel cellular panels, which also serve as ducts for hot-air distribution and cold-air return of heating systems. Heat passing into panel cells is radiated through the floor and also

flows out of registers at the baseboards. Panels can be laid from beam to beam, eliminating joists.—**Detroit Steel Products Co., 2250 E. Grand Blvd., Detroit 11, Mich.**

#### FEATHERWEIGHT DRAWING BOARD—

Honeycomb construction results in an extremely lightweight drawing board. Made in sizes from 12x17 to 31x42, these boards feature: Plywood for strength; reinforced rigidity, sealed-in warp resistance; straight-edge gear-rack aligner; transparent, plastic, removable straight-edges; and envelope-type carrying case.—**Cal-Pan Corp., 1111 S. Fremont Ave., Alhambra, Calif.**



#### BRAKE MOTOR AND BRAKE—

Compactness, simplicity of design, and complete dependability for applications requiring frequent instantaneous stopping and starting are features claimed for the new C-W brake motor. It has prelubricated-for-life cartridge bearings and a new brake lining that eliminates need for adjustments. It uses bonded metal brake linings and can be mounted on drip-proof, splash-proof, or totally enclosed motors to make a matched brake motor in ratings from 1 to 60 hp. Available separately for mounting on NEMA standard D-flange motors in frames 203-326 or C-face motors in frames 364-405 with standard double-shaft extensions.—**Crocker-Wheeler Electric Mfg. Co., Ampere, N. J.**

## To Cut Out SLOW RIVER TRAFFIC



The bulkhead walls of the three new docks of the Lakefront Dock and Railroad Co. at the mouth of the Maumee river in Lake Erie required 305,000 linear feet of steel sheet piling. A McKiernan-Terry No. 11-B-3 Double-Acting Pile Hammer, fitted with a special "pants" guide, handled this job perfectly. **Walsh-Bates & Rogers Construction Co., contractors.**

These long-needed docks enable the lanky lake vessels to pick up coal loads right at the lake front, without the tedious, bridge-hampered trip five to seven miles up the river to Toledo, formerly necessary.

Fitted with a specially designed guide to insure accuracy, this powerful 11-B-3 McKiernan-Terry Hammer, packing a 19,500 foot-pound wallop, was the contractors' natural choice for handling the big steel sheets.

For engineers and contractors all know that the McKiernan-Terry standard line of ten double-acting and five single-acting pile hammers and two double-acting pile extractors can always supply a piece of

equipment of the power needed for any specified pile-handling operation.

#### McKIERNAN-TERRY VERSATILITY

Coal and ore bridges, bulk material unloaders, bridge operating mechanisms, hoists and marine equipment are among the many other important products of McKiernan-Terry engineering and manufacturing skill that are performing important service to industry, the railroads and our government.

#### FOR FULL DATA

Write for free literature on the McKiernan-Terry line, giving specifications and pictures of these hammers on varied jobs. Send request on your business letterhead today.

MK 268 A

McKIERNAN-TERRY CORPORATION, Manufacturing Engineers, 14 Park Row, New York 7, N. Y.

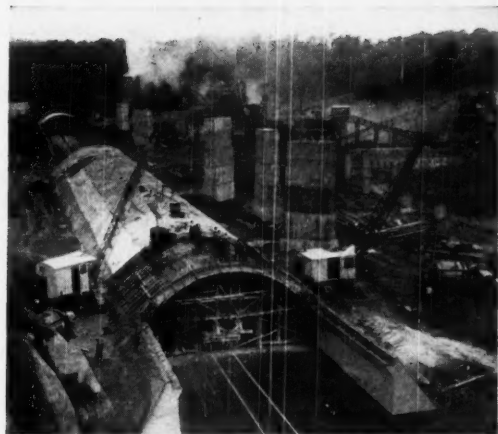
**McKiernan-Terry** PILE HAMMERS AND EXTRACTORS



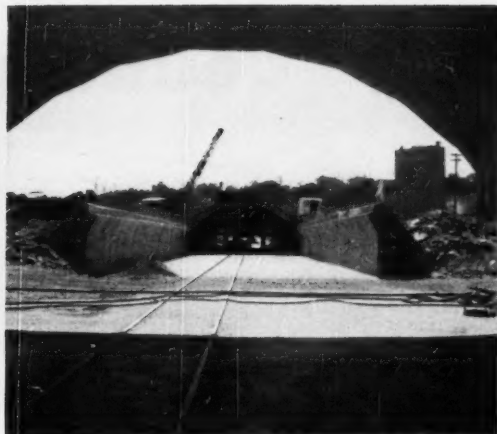
#### LIGHT WAGON DRILL—

One-man-operated, lightweight wagon mounting handles sinker drills of the 55-lb class, or 3-in. drifters. Features are: Longer steel changes, feed motor reduces operator fatigue, powered steel puller eliminates wrenching of steel and loss of holes in bad drilling ground, positive and uniform feeding pressure promotes faster unit drilling with lowered air consumption, universal-type saddle adjustable laterally on the crossbar, and drill will not plunge if steel breaks. Standard drill carriage provides a 6-ft steel change.—**Chicago Pneumatic Tool Co., 6 E. 44th St., New York 17, N. Y.**





• 40-ft. form was mounted on a flat car. 48 hours after each concrete pour, form was lowered and moved to next position.



• Track for gondolas was laid off-center to provide loading space for trucks.



• Storage capacity, 135,000 tons. Loading capacity, 14 railway gondolas and 30 trucks.

**Mammoth tunnel completed  
before cold weather with . . .**

## **LEHIGH EARLY STRENGTH CEMENT**

Speed was important to the Kingston Trap Rock Company, Kingston, N.J.—owners and builders of this two-section tunnel. Early completion was necessary in order to stock pile aggregate for early Spring delivery. By using Lehigh Early Strength Cement, construction time for the arch was cut by one-half . . . two 40-ft. sections, instead of one, were poured per week.

When construction speed is necessary, let Lehigh Early Strength Cement help you save time and cut costs. It is doing this daily on widely diversified types of construction.

Whatever your construction requirements, there are Lehigh Cements to fit them. Our Service Department will be glad to help you with any specific problem.



**LEHIGH PORTLAND CEMENT COMPANY**  
Allentown, Pa. • Chicago, Ill. • Spokane, Wash.

**LEHIGH PORTLAND CEMENT • LEHIGH EARLY STRENGTH CEMENT • LEHIGH AIR-ENTRAINING CEMENT • LEHIGH MORTAR CEMENT**

# HERE'S BIG VOLUME AGGREGATE Cedarapids UNITIZED

YOU get big volume production for big volume profit when you use the Cedarapids Unitized Plant. With these four flexible basic units combined in a dozen different ways, or used alone, you can meet any quarry condition, any capacity requirement from 25 to 250 tons per hour, any finished product specification from rip rap to agstone, with big volume efficiency and economy. Write for Bulletin UNIT-2 for complete details.



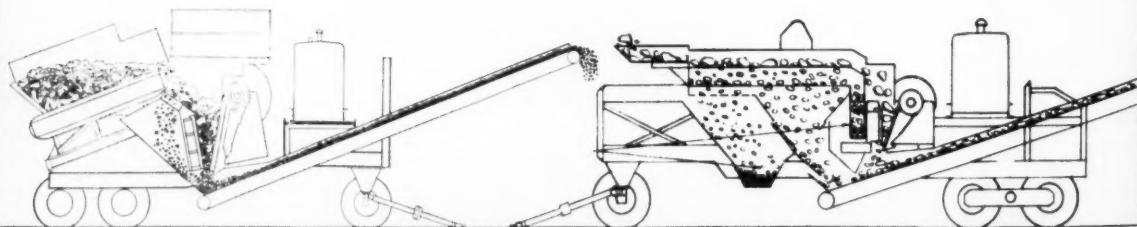
## FOUR BASIC UNITS MEET EVERY AGGREGATE

1

**PORTABLE PRIMARY CRUSHING UNITS** handle the crushing of raw material, reducing it to a size readily handled by the scalping unit or secondary. Easily moved to meet every job requirement. Available in a size to fit your needs.

2

**SCALPING UNITS** remove excess fines and crush the material to reduce the circulating load on the secondary. They can also be used for making specialized products, and where oversize is not too large, they can be used for primary crushing. Choice of sizes.



**Cedarapids**

Built by  
IOWA

### THE IOWA LINE of Material Handling Equipment includes:

ROCK AND GRAVEL CRUSHERS • BELT CONVEYORS • STEEL BINS • BUCKET ELEVATORS • VIBRATOR AND REVOLVING SCREENS • UNITIZED ROCK AND GRAVEL PLANTS • FEEDERS • TRAPS • PORTABLE POWER CONVEYORS • PORTABLE STONE AND GRAVEL PLANTS • REDUCTION CRUSHERS • BATCH TYPE AND VOLUMETRIC TYPE ASPHALT PLANTS • HAMMERMILLS • DRAG SCRAPER TANKS • WASHING PLANTS • SOIL COMPACTION UNITS • STEEL TRUCKS AND TRAILERS • KUBIT IMPACT BREAKERS •

# PRODUCTION AT ITS BEST— all purpose **PLANTS**



**MAXIMUM  
FLEXIBILITY**

**MAXIMUM  
PRODUCTION**

**MAXIMUM  
ECONOMY**

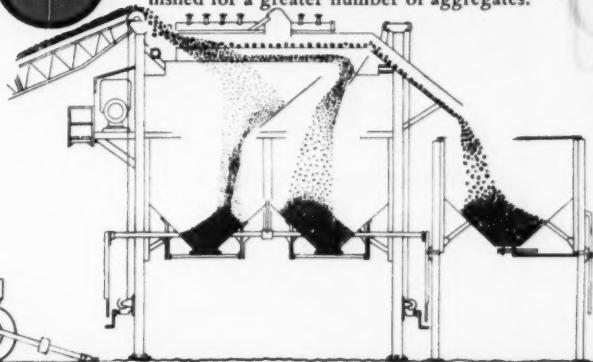
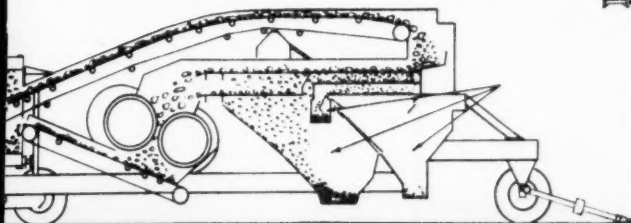
## **SPECIFICATION—ANY QUANTITY REQUIREMENT**

**3**

**SECONDARY CRUSHING UNITS** available with four types of crushers—roll, twin jaw, Symons Cone and hammermill—interchangeable to suit your finished product requirements. A complete crushing and screening plant in itself, the Secondary is the heart of the Unitized Plant. The other matched units can be added later.

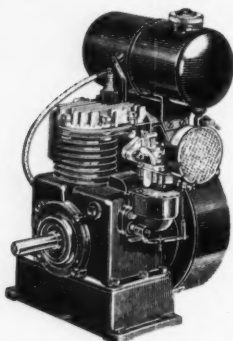
**4**

**WET OR DRY SCREENING UNITS** consist of a 2-compartment bin and double-deck screen. Washing attachments can be added for washed aggregate. Additional bins can be furnished for a greater number of aggregates.



# **IOWA MANUFACTURING COMPANY**

**Cedar Rapids, Iowa, U.S.A.**



Model K7-1, 1½ H.P. 4-cycle, single cylinder, air-cooled. Length 13", width 14", height 17". Weight 38 lbs.

**POWER FOR:**

Concrete Mixers  
Gravel Graders  
Road Oilers  
Conveyors  
Compressors  
Pumps  
Elevators  
Chain Saws  
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And other uses.

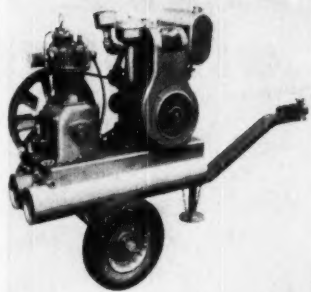
## Four-Cycle, Air-Cooled KOHLER ENGINES

**Compact • Quick-Starting  
Reliable**

Kohler Engines are designed, engineered and built to give the same dependable, economical service that has won world-wide acceptance for Kohler Electric Plants in construction and other industries. Made in several sizes, they are suited to a wide range of uses. Kohler engineers will gladly assist in working out applications for your particular requirements. Write for information. Dept. 22-V, Kohler Co., Kohler, Wisconsin. Established 1873.

## KOHLER OF KOHLER

PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS • AIR-COOLED ENGINES



**TRAILER - MOUNTED COMPRESSORS**—Portable compressor has sufficient capacity for operating paint spray guns, chipping hammers, light paving breakers, spaders, tampers, and similar pneumatic equipment. These units are furnished complete with compressor, V-belt drive to gasoline engine, and pneumatic-tired mounting. Three sizes are available. —Gardner-Denver Co., Quincy, Ill.

**NON-TOXIC WOOD PRESERVATIVE**—Non-Tox wood preservative is recommended for sealing and preserving wood products. It is effective against mold, decay, mildew, and moisture, and helps to prevent warpage and shrinkage. Methods of application vary although dip treatment is the simplest and most economical. Tuf-On Non-Tox contains a newly developed non-toxic solubilized copper fungicide combined with synthetic resins. It is also made in special solutions for fungus proofing and preserving canvas, rope, leather, and fiber. —Brooklyn Varnish Mfg. Co., Inc., 50 Jay St., Brooklyn 1, N. Y.



### Why halt traffic?

**use McCarthy**

**Heavy Duty**

**PUBLIC UTILITY DRILLS**

You can make any size horizontal hole from 4 to 24 inches in diameter with the McCarthy Heavy Duty Public Utility Drill, and you don't have to dig up pavement to do it!

The McCarthy is compactly built on a welded steel frame for easier handling; it's equipped with instant-on controls and plenty of power to assure smoother, more positive drilling performance. Standard model drills up to 12" holes, Heavy Duty model to 24".

The McCarthy has been thoroughly tested in the field, where its ability to bore holes up to depths of 180 feet horizontally has made it an outstanding favorite with contractors.

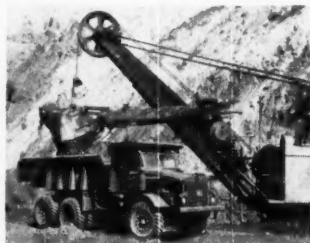
Write today or call The Salem Tool Company for complete information and prices. You'll find the McCarthy is your best investment for economical operations.

Manufacturers of Vertical and Horizontal Blast Hole Drills.



**THE SALEM TOOL CO.**

**765 S. ELLSWORTH AVE. • SALEM, OHIO**



**HEATED TRUCK BODIES**—Deflection of hot exhaust from truck engines results in a heating system designed to prevent freezing of loads in dump bodies. Or, when handling wet or sticky materials, the heating system can be used to dry material in contact with bottom and sides sufficiently to permit easy dumping. Double-wall construction of the bottom, front, and lower portion of the sides allows gas to circulate freely and be exhausted through a vent in the side. Heated bodies are available as optional equipment. —The Euclid Road Machinery Co., Cleveland 17, Ohio.

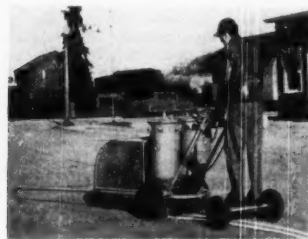




#### PIPE AND BOLT THREADER—

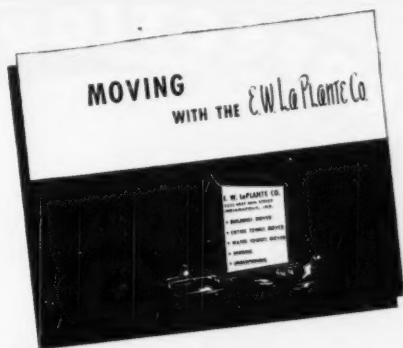
Feature of the Quijada Chief is four front jaws that automatically grip the pipe, and four rear jaws that automatically center it to eliminate whipping. Chucks are operated automatically when the push-pull switch is actuated. An improved reamer, attached to each head, reams while threading. When proper length of thread is cut, a bell rings, notifying operator to open die head. Cutter assembly is mounted conveniently for cutting off immediately after making up fittings. The Chief weighs 160 lb. and will handle pipe from ½ to 2 in. in dia.—Quijada Tool Co., Inc., 5474 Alhambra Ave., Los Angeles, Calif.

**EXTRUDED PLASTIC PIPE**—Physical characteristics of Carlon EF extruded plastic pipe include a tensile strength of 1,400 psi, negligible water absorption, slow burning rate, dielectric strength of 500 v./mil (¼ in. thickness), and flexural strength ranging from 1,500 to 1,700 psi. A 25-ft. length of 6-in. pipe weighs about 55 lb. Carlon EF can be curved to follow ditch line or surface contour without damage to pipe. Elasticity of the pipe exceeds the percentage of expansion of freezing water.—Carter Products Corp., 10153 Meech Ave., Cleveland 5, Ohio.



#### SAFETY-LINE, STRIPE MARKER

—New line of street, highway, and industrial markers includes the Super 10 self-contained and self-propelled highway marker for striping all types of traffic lines; the Super 4 self-propelled safety-line street marker; and the No. 5 safety-line marker, electric or gasoline driven, for street or industrial-plant striping or spray painting. All street and highway models are available with bead dispenser attachment. (Model shown is the Super 4)—Meili-Blumberg Corp., New Holstein, Wis.



## YOU'LL WANT TO READ THIS STORY OF THE MOVING PROFESSION!

Whether you are concerned with moving cottages or city blocks, you will want to read this fascinating story of sixty years with the E. W. LaPlante Co. See how one of the nation's outstanding organizations of moving engineers has "juggled" millions of tons—safely!

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The ***RIGHT*** Lubricant  
in the ***RIGHT*** place

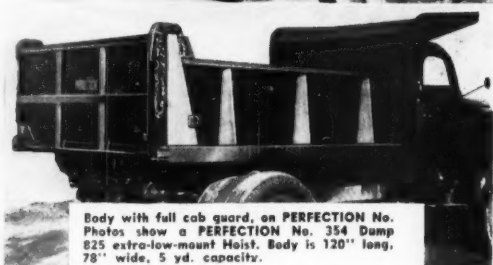
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(THE NAME TO REMEMBER)

**BODIES  
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*for regular or  
EXTRA LOW  
mounting*



Body with full cab guard, on PERFECTION No. 354 Dump. Photos show a PERFECTION No. 354 Dump 825 extra-low-mount Hoist. Body is 120" long, 78" wide, 5 yd. capacity.

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**FOR ANY TRUCK**  
STANDARD or SPECIAL UNITS  
IN ALL SIZES - FOR ANY USE

**SELF-FEEDING SPREADER**—All-purpose self-feeding cab-controlled unit spreads at any speed, forward or reverse. It can be used to apply any granular material—salt, cinders, or rock chips—for ice control or seal-coating operations. The hinged sides are adjustable for feeding any desired size or quantity of material. Two compression springs allow sides to spread apart and by-pass tramp iron or uncrushable material. Hinged action permits unit to spread evenly regardless of the angle of the dump body. Spreading to any width is accomplished by blocking off a section of feed roll.—Swenson Spreader & Mfg. Co., Cherry Valley, Ill.



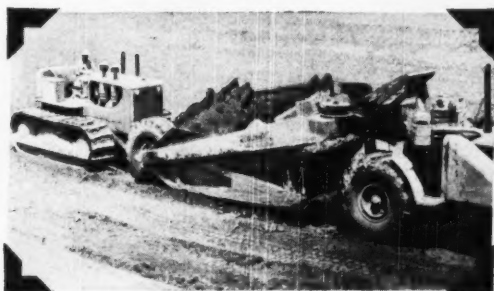
**EXHAUST PIPE COVER**—Made of strong non-rusting pressure-die cast aluminum, the Sol-Hot exhaust shield fits all vertical exhaust pipes up to 3½-in dia. Special adapter ring is available for use on larger-diameter pipes. The Sol-Hot is designed to keep harmful rain, dirt, and foreign material out of exhaust pipe and manifold. Prevents rusting of valves, flooded pistons, and expensive repairs, and deflects exhaust fumes away from the operator. The Sol-Hot automatically opens when engine is started and closes when engine is shut off.—H. M. Sheer Co., Quincy, Ill.

**AUTOMATIC BOOM STOP**—Pulling of booms to dangerous elevations is prevented by the Davenport automatic boom stop. All moving parts are enclosed in the control box mounted near to and connected with the master clutch, either directly or with a cable. The unit is spring powered and works on a catch-and-dog arrangement. In operation, as boom approaches danger point of elevation, it contacts a trigger causing the mechanism to trip, actuating the stop control arm which disengages the master clutch and shuts off power from the boom. Length of trigger determines elevation at which boom will be stopped.—Davenport Ever Ready Boom Stop Co., Mountain Home, Ark.

# STANDARD ENGINEER'S REPORT

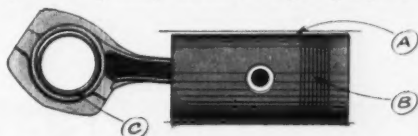
DATA	
LUBRICANT	RPM DeLo Oil
UNITS	148 Diesel Engines
CONDITIONS	Heavy-duty service 24-hour operation
PERIOD	13½ months
JOB	L. A. Airport Extension

## Engine-cleaning oil cuts "down time" in half!

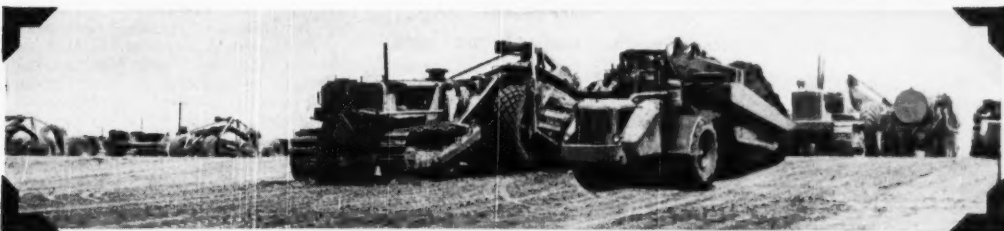


LUBRICATED WITH RPM DELO OILS, more than 100 heavy-duty engines like these were pushed to full capacity around the clock. They finished the greatest earth-moving project in the West 150 days ahead of schedule! RPM DELO Supercharged Oil kept parts lacquer-free and reduced wear so that time out for repairs was reduced 50% under that necessary when using ordinary heavy-duty oils.

How RPM DELO Oils reduce wear, corrosion, oxidation in Tractor, Truck, and other Heavy-Duty Engines



- Contains special additives that provide metal-adhesion qualities . . . keep oil on parts whether hot or cold, running or idle.
- Anti-oxidant resists deterioration of oil and formation of lacquer . . . prevents ring-sticking. Detergent keeps parts clean . . . helps prevent scuffing of metal.
- Special compounds stop corrosion of any bearing metal and foaming in crankcase.



HEAVY-DUTY DIESEL AND GASOLINE EQUIPMENT, owned by 8 contractors, moved over 12,000,000 cubic yards of earth on this cut and fill job—an extension to the Los Angeles Airport—in 13½ months! General Contractors are N. M. Ball & Sons, Berkeley; Harms Bros.,

Sacramento; H. Earl Parker, Inc., Marysville; Sub-contractors, Lewis & Queen, Fresno; Louis Biasotti & Son, Stockton; Baker Bros., Chico; Gunner Corp., Pasadena; and Far West Construction Co. All used Standard Oil Company of California products 100%.

REMARKS: RPM DELO Oils are designed to meet every heavy-duty engine need: RPM DELO Heavy Duty, RPM DELO Special, RPM DELO Supercharged-1 and RPM DELO Supercharged-2 Lubricating Oil.



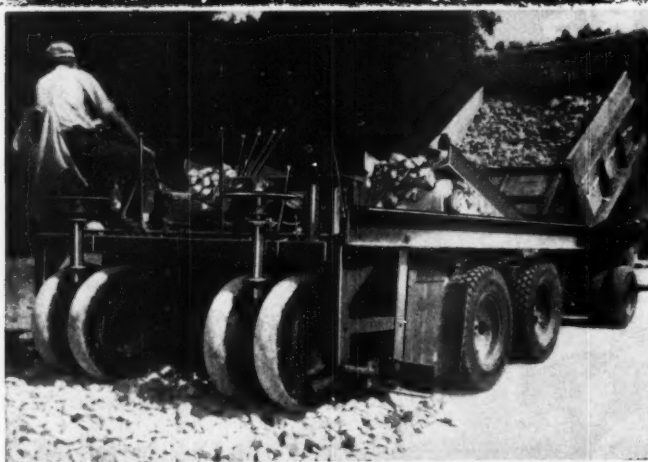
FOR MORE INFORMATION about the proper grade of the new RPM DELO Oils to fit your particular requirements, or the complete line of RPM Lubricants, and the name of your nearest "RPM" Distributor, write or call any of the companies listed below.

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*it pays off*



## APSCO BASE PAVER

This self-powered, "dump-truck pushing" paver can easily handle 160 tons per hour. It's APSCO'S newest paver—incorporating years of designing and field experience. Oscillating, leveling screed accurately controls depth, banking and crown. Adjustable spreading width. Practically no hand labor! Get further details—write today!

**ALL PURPOSE SPREADER CO.** *Myrtle, Ohio*  
U.S.A.

**Stang**

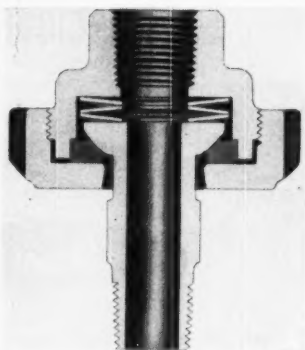
For  
KNOW-HOW  
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ENGINEERING  
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SUPERVISION  
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EQUIPMENT  
to keep jobs  
**DRY**

## WELLPOINT SYSTEM

The Stang System has proved its efficiency and economy on both large and small jobs all over the United States. Stang engineering and supervision in planning, installation and operation insures a DRY JOB at all times.

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New York 4, N. Y. Omaha, Nebr. P.O. Box 631, Bell, Cal.

**TRIANGULAR SCALE** — Dimensionally stable triangular scale is made of rigid Vinylite plastic sheets gripped by an aluminum core. Neither the plastic nor the core are subject to warping, and the fins and core are interlocked by a special process which allows for the different expansion coefficients of the two materials. Markings on white edges of the scale fins are applied by a special process and then coated with a Vinylite resin-base liquid so they will withstand continuous wear without rubbing off. — **Wolsey Co., Inc., 727 Kohler St., Los Angeles 21, Calif.**



**ROTARY SWIVEL JOINT**—Design of rotary swivel pipe joint for swivel and slow-revolving applications eliminates wedge action of the ball against the gasket, so that turning torque is almost completely eliminated. The ball is held in place by a Belleville spring. It performs without leakage at extreme temperatures, and extra-heavy models are available for extreme pressures and vacuums. A small amount of side flexibility reduces possibility of wear or breakage from side strain. Presently available in 90-deg and straight designs in  $\frac{3}{8}$ - to 1-in. pipe sizes. — **Barco Mfg. Co., Dept. 45A, 1801 W. Winnemac, Chicago 40, Ill.**

**LUBRICATION-SYSTEMS PUMP**—Portable, high-pressure Centro-Matic bucket pump is designed for use with Centralized single-line lubrication systems. The Model 1808 has a 30-lb lubricant capacity, and includes a Flex-O-Matic coupler with adapter for assembly to the manifold inlet of the most easily accessible bank of injectors. When lubricant has been discharged to all bearings, operator raises pump handle which automatically relieves line pressure in the system, permitting injectors to reload. A check, incorporated in the coupler, holds lubricant in system when nipple on hose is disengaged. — **Lincoln Engineering Co., 5702-19, Natural Bridge Ave., St. Louis 20, Mo.**



Wake up,  
**ROADBUILDERS!**



Yessir! Arise and shine, for you'll find those cost-cutting, high-production, labor saving Road Builders Batching Plants you have dreamed about all winter—are here! Butler engineers have made them real.

Fast acting, highly accurate weighing batchers . . . jam-proof, wear-resistant gates—as quick in reaction as a jet plane pilot . . . Large capacity bulk cement plants that will “tide you over.” . . . In short, for the biggest, most successful road building season you've ever had, see **BUTLER BIN**.

Here's the Bulletin you need. Shows the Complete line of **BUTLER ROAD BUILDERS PLANTS**—and all those important **BUTLER** features. Ask for Bulletin 205.



**BUTLER BIN COMPANY**

**WAUKESHA, WISCONSIN**

**949 BLACKSTONE AVENUE**

## WHEN THE PULLING IS TOUGH



When you're running into piles of difficulty, here's the extractor you always can depend on. It has the extra power, the extra ruggedness, speed and efficiency to extract any type of pile and to pull you through a difficult project on schedule. It's really a time saver. And remember . . . time saved is money saved.

The Vulcan Pile Extractor is simple in construction and easy to operate. It is built in three sizes for all extracting purposes—No. 200 for smaller work, No. 400 for heavier jobs and No. 800 for really tough jobs.

Write for complete details on the pile extractor that has proved itself in the field since 1927.

**VULCAN IRON WORKS**  
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**PHOTOSENSITIZED CLOTH**—Conventional negative step used in making cloth reproductions of engineering drawings is eliminated by use of Kodagraph Autopositive cloth. This cloth produces a positive copy directly from a positive original drawing. It may be handled in normal room light and is exposed on conventional blueprint or direct-process machines or a vacuum printing frame. It is available in 30- and 100-ft rolls in 20, 30, 36-, and 42-in. widths.—Eastman Kodak Co., Rochester 4, N. Y.



**FLEXIBLE WALL FORMS**—Kenney system of wall forms is made of plastic-coated plywood panels set into rigid steel frames. Combination of various sizes of even- and odd-inch-width steel panels permits walls and pilasters to be framed without patching lumber. Four different lengths are available. A one-piece key wedge, attached to the form panels, secures the tie which spaces the wall and locks panels together. The 3-in-1 waler hook, which is hooked through hole in wall tie, permits use of loose wood liners on one face of wall. Strap ties, which can be placed between form panels before or after forms are erected, are sufficiently strong to take full liquid head. Ties break back from face of wall.—Consolidated Concrete Form Corp., 995 Teaneck Road, Teaneck, N. J.

**CENTRIFUGAL-PUMP SEALS**—Mechanical seals for stuffing boxes of centrifugal pumps are primarily designed to increase service time and reduce leakage losses. The Type U is a balanced, high-pressure single seal for installation on shafts from 1½ to 5½ in.; with special sizes available for shafts of larger diameter. In the Type U, the stationary face is locked in position and protected from damage by the seal cover. A seat gasket prevents leakage around the stationary face and a U-cup prevents leakage under the rotating face. The Type L is a simple, inexpensive, and low-pressure single seal for small pumps handling cold water where temperatures do not exceed 110-deg. F. and pressures do not exceed 50 psi. The Type B is an oil-lubricated double seal for high pressures and cold service where pumped liquids contain little, if any, lubricating value. Included with the Type B is a two-compartment, oil-tank assembly.—Byron Jackson Co., Pump Division, Terminal Annex Box 2017, Los Angeles 54, Calif.

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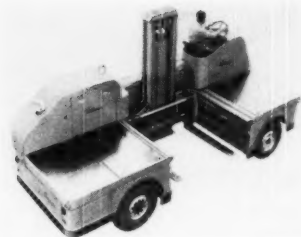


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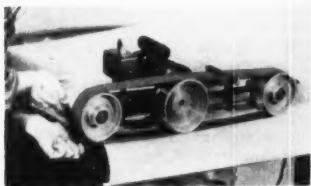


#### SIDE-LOADING TRAVELOADER—

Side-loading hydraulic Traveloader lifts, loads, unloads, stacks, and hauls loads up to 30,000 lb in weight at speeds up to 30 mph. In operation, a hydraulic lift tower slides out 72 in. to insert its forks under the load. The load is then brought aboard by hydraulic power, and deposited on the platforms. Unit will stack to any height up to 12 ft. Two retracting stabilizer jacks permit safe handling of maximum weights. Tower tilts 5 deg in or out. All power is supplied by a rear-mounted engine, either gasoline or diesel. Attachments are available for specialized handling problems.—Lull Mfg. Co., 3612 E. 44th St., Minneapolis 6, Minn.

#### SINGLE-AXLE TRAILER ASSEMBLY—

Two-wheel single-axle assemblies available as complete packaged kits are recommended for transporting equipment weighing as much as 7,000 lb. Each Caravan unit consists of two hub-and-wheel assemblies, two leaf-springs, side-frame or under-frame mounting brackets, and a lunette or clevis-type hitch. In addition, Caravan units can be supplied with 11-, 12-, or 14-in. brakes, automatic brake-control device, and a front landing-gear assembly to provide a steady rest and facilitate positioning of loaded trailer. The Titanic hydraulically operated braking device applies brake instantly and smoothly when towing vehicle slows or stops.—The United Mfg. Co., 47 W. Interstate St., Bedford, Ohio.



#### GRINDER SETS AT ANY ANGLE—

Belt grinder is mounted on an axis centered at the motor shaft, permitting the abrasive belt to be set at any angle. The Expeditor is designed for free-belt operation, form wheel work or contour grinding, line contact grinding, and similar operations. Various densities are available.—Harvey L. Ramsay & Co., 636 S. 10th Ave., LaGrange, Ill.

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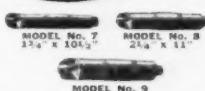
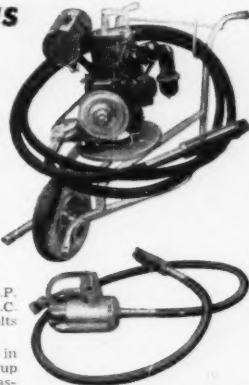
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## save one costly concreting operation

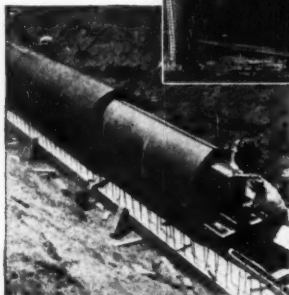
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## BIG TUNNEL JOB

Original specifications on this big tunnel concreting job called for four operations . . . pouring side walls, placing arched roof, then the ceiling slab, and the floor. Collaborating with the contractor, Blaw-Knox engineers demonstrated how Blaw-Knox collapsible Steel Forms could be combined to permit concreting of side walls and roof arch in one operation. One step in construction was saved, and the necessity of using an expensive copper water stop between the wall and the arched roof was eliminated. The time saved expedited completion of the job. A daily concreting progress of 50 ft. was obtained by telescoping 50 ft. units of combined side wall and arch forms. Such Blaw-Knox consultation service in planning profit-making construction jobs as early as the blueprint stage is available to any contractor without obligation.



Right—Typical of the wide variety of jobs on which Blaw-Knox Steel Forms are used, this super highway viaduct was built with three sets of Blaw-Knox steel centering which carry the forms for the arch ribs.



Left—Blaw-Knox Steel Forms speed construction of a small sewer. Some of the recent typical jobs where Blaw-Knox forms and engineering service were used include: Brooklyn-Battery Tunnel, West Rock Tunnel (New Haven), Bull Shoals Dam, Delaware Memorial Bridge, Squirrel Hill Tunnel, Parkersburg Floodwall and many others.



### TOUGH, UNUSUAL PROBLEMS SOLVED BY BLAW-KNOX ENGINEERING

**EXPERIENCE** As the original and most prominent manufacturer of Steel Forms for heavy construction, Blaw-Knox has been called upon to solve many tough and unusual concreting problems. The experience gained over 40 years has resulted in an engineering service unequalled for helping you obtain the most efficient forms for your particular job plus simplified forming methods that save time and money. Whatever your concreting problems, from tunnels to building big dams or bridges, to pouring small sewers or foundations, Blaw-Knox engineering skill and experience is at your service. Write today for advice or information, or ask for Bulletin 2035.

# BLAW-KNOX

BLAW-KNOX DIVISION OF BLAW-KNOX CO., Farmers Bank Bldg., Pittsburgh 22, Pa.  
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#### PORTABLE ASPHALT MIXER—

Multi-pug asphalt mixer has a capacity of 1 ton per min. It is powered by a Wisconsin 14-hp gasoline engine, and has a 20-gpm positive-displacement pump. All proportioning of aggregate and asphalt in the Model JR is volumetrically controlled. It is convertible to a stationary plant by mounting under a bin, or used at either end of a portable belt conveyor. It is also adaptable for use as a mix-spread unit.—K. E. McConaughay, Painters & Decorators Bldg., Lafayette, Ind.



#### CONTROLLED-POWER CHIPPING HAMMER—

Available in 15 power sizes (using 5 basic hammer sizes), the controlled-power chipping hammer is designed to meet exacting cutting conditions imposed by present-day metals. Each basic hammer size is available in normal cut, extra cut, or supercut types, made possible by a design variation in which one part is interchangeable throughout the entire line. The Airite valve accurately proportions amount of air fed to the front and rear of the piston to maintain top cutting efficiency under all conditions; provides a smooth flow of full power; and eliminates short stroking and loss of power on heavy cuts. Three types of handles are available.—Ingersoll-Rand Co., 11 Broadway, New York, N. Y.

#### CARBURETOR - CLEANING KIT—

Cleaning of internal parts of carburetors, without dismantling, is made possible by the Gumouter. Cleaning of all functional surfaces—venturi, jets, and needle valve—is effectively accomplished. To use the Gumouter, the fuel line is detached at the fuel filter or carburetor fuel intake. The fuel line is then capped or plugged with a five-way combination fitting which serves the majority of requirements. Gumouter permits a 50-50 solution of Gumout and gasoline to be gravity fed through carburetor while engine is running. Solvent cleaning action of Gumout is said to dissolve and remove all gasoline gums, varnish, and lacquer upon contact.—Pennsylvania Refining Co., Gumout Division, 2686 Lisbon Road, Cleveland 4, Ohio.

## Gorman-Rupp's Handle Low Water Crisis at Rye Lake



When Rye Lake, Westchester County, New York, receded, cutting off three villages from water supply, the crisis was met by putting dependable Gorman-Rupp pumps on the job.

240-M  
10 inch



### THE WORLD'S MOST COMPLETE LINE ... OF SELF-PRIMING CENTRIFUGAL PUMPS

Whatever the job requires: a tiny twenty pound "Handy" pump, a lightweight "Midget" pumping 5500 GPH, or a pump handling up to 240,000 GPH, you will find the most efficient pump is the Gorman-Rupp.

**QUICKEST PRIMING:** The 40 M, for example, primes at 15 foot Suction Lift in 40 seconds.

**HIGHEST PRIMING:** High suction lifts are easy for Gorman-Rupp Pumps.

**FASTEST PUMPING:** More water per gallon of fuel than any other comparable pump.

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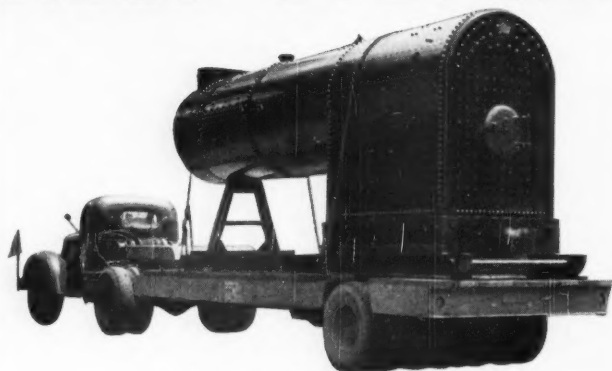
**ALL-PURPOSE COUPLER** — Hydraulic coupler is applicable to installations where either breakaway or standard type is indicated. When plug is inserted into the socket, a slight twist causes a sleeve to lock the coupler automatically. Disconnect is accomplished by pulling the sleeve back. To use as a breakaway coupler, sleeve is connected to the tractor by a bracket. When the bracket pulls the sleeve back, it automatically disengages the coupler

preventing hose breakage and oil loss. No chains, collars, or special links are used. The Ulrix coupler can be connected under all operating pressures, and, when disconnected from a raised load, the coupler is said to hold the pressure of the load as long as required.—Ulrich Mfg. Co., Roanoke, Ill.

**STRIPE PAINTER** — Line marker paints straight, curved, continuous or skip lines, or lettering. Light in weight, the Handi-Liner has no moving parts and is quickly cleaned by flushing with gasoline or paint thinner. It paints lines approximately 3 3/8 in wide using any good traffic

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Skid mounted with 24" oil burning base.

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1. 1040 sq. ft. heating surface.
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5. Butt straps calked and seal welded inside.
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Working Pressures from 125 to 350 lbs.

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### ALUMINUM POLE DERRICKS—

Utility-type pole derricks are manufactured of Alcoa aluminum. They represent a weight savings of about 50% over similar units of standard materials. When mounted on trucks, the derricks find wide application in placement of telephone and utility poles, and similar operations.—Eagle Mfg. Co., Div. of the The Four Wheel Drive Auto Co., Appleton, Wis.; or, American Coach & Body Co., 9503 Woodland, Cleveland, Ohio.

### WEAR-RESISTING PLATE—

Heat-treated alloy-steel plate is recommended for repair of construction equipment where resistance to abrasion and impact is important. Typical uses for Bulldog Tufaloy include truck-bed maintenance, baffle plates, crusher hammers, buckets of all types, scrapers, chute linings, and similar applications.—Allied Steel Products, Inc., 7835 Broadway, Cleveland 5, Ohio.

### LIGHT-DUTY ROLLER—

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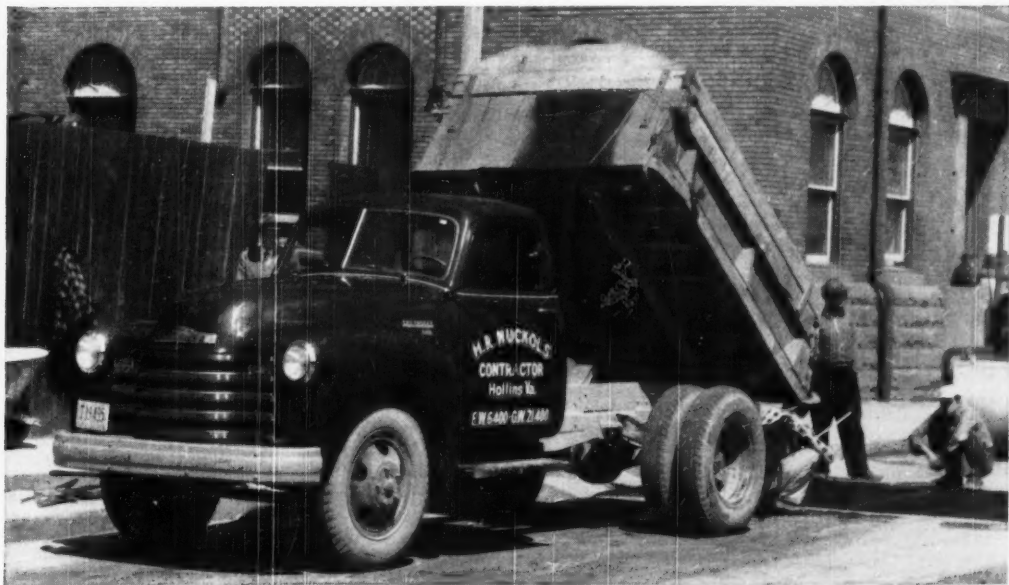
The new Chevrolet P-L trucks give you high pulling power over a wide range of usable road speeds—and on the straightaway, high acceleration to cut down total trip time.

### **P\* Payload Leaders**

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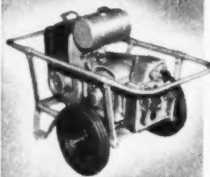


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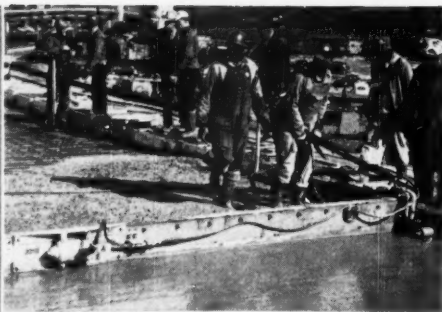
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both single phase and  
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This machine can be used to tremendous advantage in compacting granular backfill under factory floors, in trenches, bridge approaches, close to bridge abutments, alongside foundations, under footings, ramps, sidewalks, municipal pavements, loading docks; in compacting such granular soil as is used in earth fill dam construction and many other places. Delivers up to 4500 1/2-ton vibratory blows per minute. Propels itself at 6' to 8' per min. One man can guide two units side by side. The Jackson M-1 Power Plant will operate two of these machines simultaneously. Complete details on request.\*

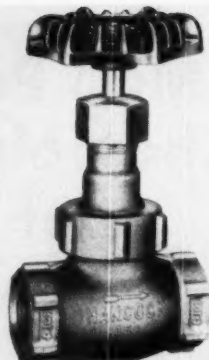
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for vibrating full slab widths of highway and airport paving; Side Form vibrators for attachment to finishers and spreaders; mass and general construction vibrators ideally suited to each type of job.

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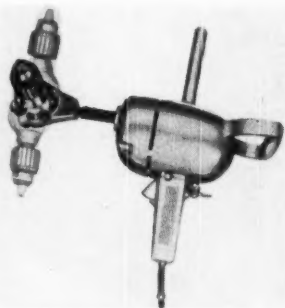
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**ELECTRIC TAMPER AND EQUIPMENT CO. • LUDINGTON, MICH.**



**BRONZE VALVE**—The "500 Brinell" Hancock bronze valves have stainless steel seats and disks and a diaphragm construction claimed to be exceedingly strong. They are manufactured in sizes of 1/4 through 2 in. and are available in globe and angle types, screwed ends. The Hancock valves are designed for all pressures up to 150-lb saturated steam; or 300 lb for non-shock cold water, oil, or gas.—Manning, Maxwell & Moore, Inc., Watertown 72, Mass.

**HIGH-PRESSURE HOSE COUPLING**—Streamlined design of Bar-Way high-pressure hose coupling eliminates obstructing projections and sharp edges and clamps. Full inside diameter of hose is maintained with no reduction of flow. Couplings will withstand any pressure the hose will take and have been tested for more than 3,000-lb pressure with a pull of more than 500 lb.—Bar-Way Mfg. Co., Stamford, Conn.



**ALL-ANGLE HEAD DRILL**—Angle-head attachment for 1/2-in. drills is designed for use in hard-to-get-at tight spots. It will fit any 1/2-in. drill with Model 33B Jacobs chuck. Gearing has a 2:1 ratio; no-load spindle speed on right angle head is 275 rpm, and the unit weighs 2 lb. With the drill set at right angles, the tool measures 7 1/2 in. wide.—Cummins Portable Tools, 4740 Ravenswood Ave., Chicago 40, Ill.



## New PUBLICATIONS From MANUFACTURERS

The catalogs and bulletins reviewed below will keep you posted on latest developments in construction equipment and materials available for your use

**WELDING DIRECTORY** — Latest metal-joining data on Eutectic low-temperature welding alloys is available in 8-p. Directory Welder for 1950. It features descriptions of 65 Eutec-Rods for torch welding and Eutec-Trodes for arc welding. A complete selection chart is included for information on numerous specialized welding alloys. — **Eutectic Welding Alloys Corp.**, 40 Worth St., New York 13, N. Y.

**MATERIALS-HANDLING ATTACHMENTS**—Attachments, tools, and accessories for Hyster lift trucks, straddle trucks, and mobile cranes are described in 28-p. catalog. Model views, diagrams, specifications, action pictures, cartoons and explanatory text are used to bring out the features of the various attachments. — **Hyster Co.**, 2921 N. E. Clackamas, Portland 8, Ore.

**ASPHALT HARD-BOARDS** — All-purpose building board is described in 4-p. folder. Uses for Sealtight boards include: As backer boards for roll brick or asbestos siding application; under concrete slabs as a puncture-proof vapor seal; flooring underlayment for linoleum, asphalt tile, or rubber tile; and as a knee wall for blow-in insulation jobs. Folder lists complete specifications including tensile strength, resistance to chemicals and heat, and other physical characteristics. — **W. R. Meadows, Inc.**, 2-8 Kimball St., Elgin, Ill.

**LIGHTWEIGHT HOT-ROLLED BEAMS**—Technical data for the installation of Junior Beams and Junior channels are described in 24-p. booklet. Junior Beams are the lightest hot-rolled steel beams manufactured and are said to provide skyscraper construction for every building. Booklet AD-156 is attractively presented and amply illustrated with photographs of Junior Beam floor joist and roof purlin installations in progress. Individual sections are devoted to construction of light occupancy buildings, industrial buildings, and residences. — **Jones & Laughlin Steel Corp.**, 436 Jones & Laughlin Bldg., Pittsburgh 30, Pa.

## Ramset Fastening System

	Present Method	Ramset System
NO. OF FASTENINGS	240	32
TIME REQUIRED	240 HOURS	32 HOURS
COST AT \$2.40 PER HOUR	\$576.00	\$76.80
COST OF MATERIALS	24.00	60.00
TOTAL COST	\$600.00	\$136.80
COST SAVED WITH RAMSET SYSTEM		77% 1.93
		208 HOURS 86%

77%

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WITH  
**Ramset**  
FASTENING SYSTEM

SEVEN TIMES FASTER than with his old method, this contractor set 240 RAMSET FASTENERS through 2" x 2" x 1/4" steel angles into concrete with RAMSET—at a saving of \$463.00! You can save comparable sums with RAMSET when fastening into steel, concrete, masonry or other hard materials. For proof, ask us for a free Cost Comparison Sheet and put down your actual cost figures. You will see quickly the substantial savings you can make with the light, portable, proven RAMSET TOOL.

RAMSET eliminates slow, costly, tedious drilling, chipping, tapping and plugging. Actual fastening time with RAMSET—less than one minute per fastener with any of the 65 types and sizes of plated RAMSET FASTENERS.

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A 15-minute demonstration will show you how much time, money and trouble RAMSET can save. Call your local RAMSET representative today or ask us for details and free Cost Comparison Sheet.

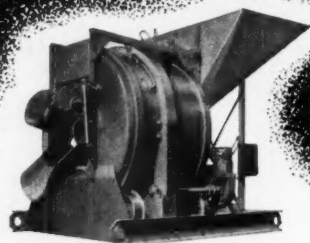
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SAVES TIME . . . CUTS COST  
ON JOBS LIKE THESE:

#### Fastening—

- Metal framework to walls, floors and ceilings.
- Supports to concrete, brick and steel.
- Wood sills to concrete.
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## Sterling WOOD HANDLE WHEELBARROWS

No. 55W — for handling sand and other dry materials. 14 ga. tray. Max. cap. 4 cu. ft.



You'll like these new, lightweight, easy-wheeling Sterlings, designed for faster material transport service. Famous Sterling balanced construction puts 80% of the load on the wheel . . . only 20% on operator. Equipped with long wood handles, formed to fit operator's hands. Steel channel legs and reinforcements are just the right height. Means less stoop for operator and greater leg clearance. Steel wheel, roller bearing wheel with pneumatic tire or zero pressure cushion type wheel, can be furnished. Write for new Wheelbarrow Catalog.

STERLING WHEELBARROW CO., Milwaukee 14, Wis.

**Sterling**  
WHEELBARROWS



Look for this Mark of  
STERLING Quality

**AIR-PLACED CONCRETE** — New uses for air-placed concrete using the Bondactor method are presented in an illustrated 8-p. catalog. Both the Bondactor and Bondactor Junior are described in detail. The catalog contains an outline of the development of the Bondact process, a list of suggested uses, and a series of before-and-after pictures showing the effectiveness of Bondactor-placed concrete in a variety of applications. — **Air Placement Equipment Co.**, 2525 Southwest Blvd., Kansas City 8, Mo.

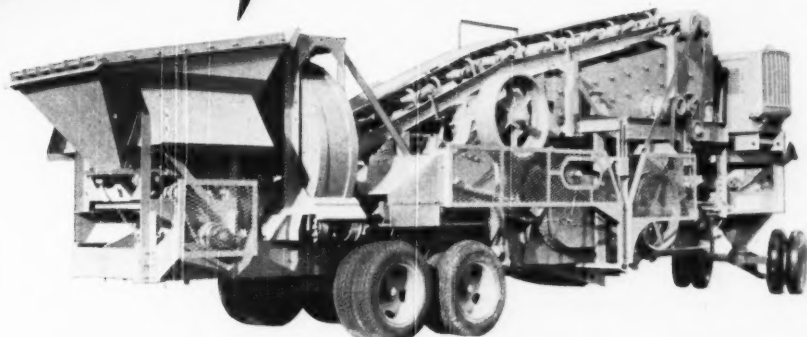
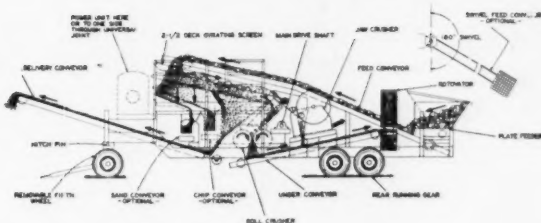
**RAMSET FASTENING SYSTEM** — Equipment for power-driving studs and other fasteners into concrete, brick, steel, and similar materials is described in new bulletin. The Ramset tools are available in two sizes—for light- or heavy-duty work. This bulletin illustrates several types of fasteners including standard drive pins, coupled-head drive pins, snap-head drive pins, and internal and external threaded studs. Accompanying each illustration is a table listing part number, over-all length, threading, thread length, shank length, over-all length and diameter, and head diameter. — **Stemco Corp.**, 1299 Parsons Court, Cleveland 16, Ohio.

**ALUMINUM LADDERS** — Alco-Lite aluminum ladders for industry are described in this 12-p. folder. Ladders listed include folding step, warehouse, and straight ladders. The weight of each of these ladders is listed in a table of specifications. — **Aluminum Ladder Co.**, Worthington, Pa.

**SIX-CYLINDER DIESELS** — Two new bulletins contain complete specifications for all automotive and industrial models of the HR-600 and HRS-600 four-cycle 6-cylinder diesels. Each bulletin includes general specifications, a list of standard equipment for each model, and a list of optional equipment. — **Cummins Engine Co., Inc.**, Columbus, Ind.

**WELDING PRODUCTS SELECTOR CHART** — Selector and comparison chart of hard-facing rods and electrodes lists each of Amsco's welding rods and electrodes and indicates the type of service for which each is designed. Metallurgical and physical descriptions of each rod are arranged so as to simplify selection of the right rod for the right job. For comparison purposes, competitive rods which are the closest equivalents for the service noted—but not necessarily of the same composition or permanence as Amsco rods—are also listed. — **American Brake Shoe Co., American Manganese Steel Division**, 230 Park Ave., New York 17, N. Y.

**Follow this  
Flow of Material  
to PROFIT**



### 880 JUNIOR GRAVELMASTER CONDENSED SPECIFICATIONS

- 1024 or 1036 Roller Bearing Jaw Crusher.
- 2416 Roller Bearing Star Gear Drive Roll Crusher.
- 3' x 10' Roller Bearing 2 1/2-Deck Inclined Gyrating Screen.
- 6'-2" x 19" Rotator.
- 24' Wide Conveyors. Sealed-for-life bearings.
- Plant Mounted Power or Side Drive through Universal joint.
- Countershaft for Main Drive permits choice of 1000 to 1600 RPM plant-mounted power units.
- Maximum use of V-Belt drives.
- Sand removal standard. Conveyor optional.
- Chip removal standard. Conveyor optional.
- Overall height—12'-6".
- Passes state weight limitations.

**CAPACITY**—60—90 yards per hour—1" based on 25% crushing with 1024 jaw crusher. For more than 25% crush, the 1036 is recommended.

## MORE FOR YOUR MONEY WITH UNIVERSAL "STREAM-FLO" ENGINEERING

UNIVERSAL'S "Scalping Deck" method of screening assures more effective screening, faster material flow. The heavy top "scalping deck" protects the finish deck from materials too large for the rolls and permits the lower screening area to be fully utilized. The screen is mounted at an incline giving faster separation for higher capacity, better gradation for meeting the most exacting specifications. No screenable material is carried over to choke the crushers. Material too large for the rolls is scalped to the jaw crusher. Only sized material goes to the rolls. This means greater capacity, less jaw and roll wear, lower horsepower requirements.

Only UNIVERSAL offers the superior advantages of "Stream-Flo" Engineering to give you more for your money in performance, in economy... in more tons per hour at less cost per ton. With all their extra value you don't pay a premium for a UNIVERSAL Gravelmaster. Made in 4 sizes with capacities up to 200 yards of 1" per hour. Investigate now. Write for complete details.

## UNIVERSAL ENGINEERING CORP., division of PETTIBONE MULLIKEN CORP.

327 8th St., N. W., CEDAR RAPIDS, IOWA

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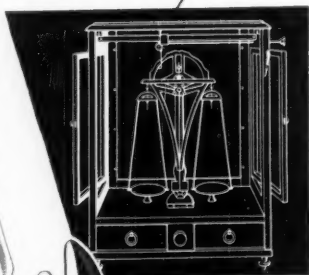
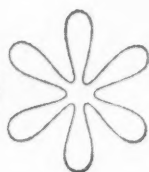
4700 W. Division St., CHICAGO 51, ILL.

Phone SP aulding 2-9300



**no secrets**

\*With balance and  
burette our  
laboratory technicians  
get right to the  
heart of things  
in their  
constant search  
for ways to  
make  
Hermitage Cements  
better and better.



**Hermitage Portland Cement Company • AMERICAN TRUST BUILDING, NASHVILLE 3, TENN.**



PORTLAND  
HIGH EARLY STRENGTH  
AIR ENTRAINING  
MASONRY



**SLING WITH TAPERED-SLEEVE SPLICE**—Rolled loop and single tapered sleeve provide all-purpose sling with greater flexibility and compactness. Four-page folder describing this development contains a table listing breaking strength, loop dimensions, and sleeve dimensions for slings made from wire rope with diameters ranging from 2 to 1/4 in. The bulletin also describes how the loop is formed, and the savings possible by eliminating splicing by users.—**John A. Roebling's Sons Co., Trenton 2, N. J.**

**STEEL-HARDENING COMPOUND**—How to make metal-cutting tools from ordinary mild steel is described in a technical paper now ready for distribution. High-Speed-It is a carbon-chromium-manganese hardening compound, available in powder form. No special equipment is necessary for its use, other than a source of heat which will bring the metal up to a cherry-red temperature. The paper contains complete information on its use, and on the results which can be achieved with it.—**Wilson Carbon Co., Construction Division, 60 E. 42nd St., New York 16, N. Y.**

**FASTENERS FOR EARTH-MOVING EQUIPMENT**—Ten-page booklet describes sixteen basic types of fasteners for earth-moving and heavy-construction equipment. They include high-carbon lock nuts and cap screws, wire rope clips, cotter pins made of five different metals, tractor and machine bolts, and special grades of bolts and studs for use in the manufacture of engines.—**Lamson & Sessions Co., 1979 W. 85th St., Cleveland, Ohio.**

**PREFORMED WIRE ROPE**—Stainless-steel and monel-metal corrosion-resistant wire ropes are described in 4-p. folder. This bulletin contains tabulated data listing diameter in inches and breaking strength in pounds of several standard sizes of wire rope. It also explains what the various symbols used in classifying wire rope stand for; how to measure wire rope; and other miscellaneous data.—**Macwhythe Co., 2941 Fourteenth Ave., Kenosha, Wis.**

**FLEXIBLE SHAFTS AND GRINDERS**—Complete information on flexible shafts and grinders is contained in Catalog 50. Many new-model single- and multiple-speed flexible shaft machines are introduced in this catalog. Parts and accessories are illustrated, and explanatory data presented on details of grinding, sanding, wire brushing, polishing, de-burring, and other operations.—**Wyzenbeek & Staff, Inc., 835A W. Hubbard St., Chicago, Ill.**

## Built-in Fibre Mileage

Plenty of tough fibre and extra large diameter means extra mileage on Grace brushes.



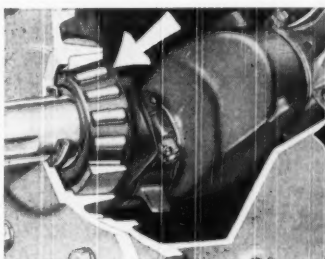
## with 36" diameter brush on GRACE 2-WAY SWEEPERS

400  
600  
1000  
GALLONS  
CAPACITY

TRUCK  
OR TRAILER  
MOUNTING



*Vacuum* Cleans Both Spraybar and  
Handspray on GRACE RAPIDSpray  
MAINTENANCE DISTRIBUTOR  
**W. E. GRACE MFG. CO.**  
6100 S. LAMAR ST., DALLAS, TEXAS



*Why*  
**WISCONSIN**  
HEAVY-DUTY *Air-Cooled*  
**ENGINES**  
*Run on Timken Tapered Roller Bearings*

Ever since the first Wisconsin Air-Cooled Engine was built over 20 years ago, the crankshaft of every one of these fine engines has been supported by Tapered Roller Bearings at BOTH ENDS. Here's why:

1. Tapered Roller Bearings take up all End Thrusts and Radial Loads (impossible with other types of bearings). You can mount your drive directly on the extended crankshaft of any Wisconsin Engine without the need for an extra thrust bearing or outboard bearing.
2. Tapered Roller Bearings resist wear to a greater extent than other types of bearings not only because of the file-hard surfaces of Timken Tapered Bearings but also because these bearings are inherently SELF-CLEANING. Oil enters at the smaller end of tapered roller bearings and centrifugal force carries it out through the larger end, thus preventing accumulations of dirt and sludge that is often present in the oil. (Tapered bearings cannot develop shaft-cutting abrasive surfaces.
3. Tapered Roller Bearings permit flexing of the crankshaft to a much greater degree than the longer, rigid plain bearings which cannot stand up under flexing conditions, resulting in wearing "bell-mouthed" or failing completely. We have yet to hear of a single case of Wisconsin Engine bearing failure. The use of Tapered Roller Bearings in ALL Wisconsin Engines from the smallest to the largest . . . 3 to 30 hp., single cylinder, 2-cylinder and 4-cylinder . . . is typical of the engineering diligence devoted to providing the user with "Most H.P. Hours of on-the-job service".



Single cyl.  
3 to 9 hp.



2-cylinder  
7 to 13 hp.



V-type 4-cyl.  
13 to 30 hp.



## WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy-Duty Air-Cooled Engines  
MILWAUKEE 14, WISCONSIN



**Here's Why**

**Crane Users**

**Save Money With**

**RUD-O-MATIC**

**TAGLINE  
CONTROL**

**1. ON MAGNET PICK-UP JOBS**—steel tagline cable takes the load while protective slack is maintained in costly electric cable.

**2. ON CLAM SHELL BUCKET JOBS**—no swing, no sway. Saves time and improves efficiency.

**3. ON ALL APPLICATIONS**—boom and overhead cranes. A heavy duty coil spring assures constant tension without service problems.

Large bearing and fewer sheaves reduce friction and wear.

Easy installation and easy switch to equipment of similar size.



**RUD-O-MATIC  
COMBINATION  
MAGNET REEL-TAGLINE**

Available in five sizes for boom crane use and 4 sizes for overhead crane application. Used by steel mills, foundries, shipyards, railway shops and scrap dealers.



**RUD-O-MATIC  
TAGLINE**

Available in 8 models to provide proper tension and sufficient cable pull out for various size buckets. Used as standard equipment by all leading crane manufacturers.

**McCAFFREY-RUDDOCK**

*Tagline*

CORPORATION

2131 East 25th St., Los Angeles 11, Calif.

**HEAVY-DUTY TRANSMISSIONS—**

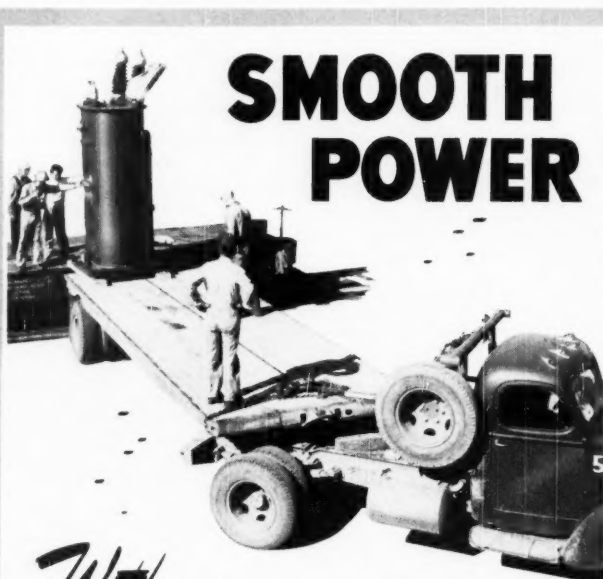
Individually designed heavy-duty transmissions for a wide variety of purposes are described in this 8-p. catalog. Typical applications for Cotta transmissions, illustrated and described in Catalog WH 642, include ditchers, travel-mix plants, power drills, street sweepers, concrete-pipe machines, blast-hole drills, pumping units, cranes, snow plows, and others.

—Cotta Transmission Corp., Rockford, Ill.

**ASPHALT HEATER**—Combination circulating and steam heater for tank cars of asphalt is described in 2-color 8-p. catalog. Feature of catalog is a cutaway view of the Rapid Fire unit showing flow diagram

through heat exchanger, as well as component parts of the unit. Another cutaway drawing—of the right side of the unit—shows location of the asphalt pump and other principal parts of the heater.—W. E. Grace Mfg. Co., 6000 S. Lamar St., Dallas, Tex.

**MAINTAINER BULLETIN**—Sixteen-page bulletin explains how the Huber maintainer's several front-end attachments can be used for a wide variety of construction and maintenance applications including grading, berm leveling, road planing, bulldozing, and as a lift loader, snow plow, highway mower, one-way broom, and patch roller.—Huber Mfg. Co., Marion, Ohio.

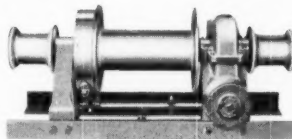


**SMOOTH  
POWER**

*With*

**TULSA\* WINCH**

The transformer pictured weighed 10,500 pounds. Tulsa Winch, on the contractor's truck saved much handling time with its ability to skid the transformer in an upright position from the freight car. The smooth, even, steady pull of the Tulsa Winch was insurance against upsetting the heavy load. For dependa-



bility on the long, slow, hard pulls use the all-purpose Tulsa Winch on your truck. For literature write Tulsa Winch, Div. of Vickers, Inc., Dept. CM-1, 817 E. 1st, Tulsa, Okla.

\*Reg. U. S. Pat. Off.

**Tulsa Winch**  
TULSA, OKLAHOMA  
DIVISION OF  
VICKERS, INC.

**LUBRICATION GUIDE** — Recommended lubricants for trucks, tractors, and road-construction equipment are indicated in a 14-p. catalog. This catalog describes the properties of nine different Motul lubricants and gives accurate recommendations for their most efficient use.—**Swan-Finch Oil Corp.**, 30 Rockefeller Plaza, New York, N. Y.

**SCREEDS SUPPORTS** — Four-page bulletin lists complete new line of screed supports including an offset screed head designed to hold either 1-in. (ID) pipe or a 1¼x1¼x3/16-in. bar; screed bolt for heavy screeding with a 2x2x¼-in. T-bar; form bracket; adjustable base; subgrade stake; subgrade base; subgrade chair; form bolt; and curb bolt. The form and curb bolts are used for supporting hanging forms for walls or curbs. The offset screed head and the screed bolt are completely adjustable from above by a speed wrench.—**Richmond Screw Anchor Co., Inc.**, Dept. S, 816 Liberty Ave., Brooklyn 8, N. Y.

#### GASOLINE, DIESEL GENERATORS

—Two catalogs issued by Onan, describe the company's line of diesel and gasoline-driven electric plants. Folder A-168 (8 pp.) describes the gasoline plants ranging from 260 to 35,000 w, in all standard voltages, frequencies, and phases. Direct-current models in standard voltages and capacities from 750 to 15,000 w are also described; as are battery-charging plants in 6-, 12-, and 32-v sizes with capacities of 400 to 2,000 w. A model guide and general information section explains the difference in the three types of units, and provides information for choosing proper type, size, and starting method. Folder A-192 (4 pp.) lists the diesel units. These range from single-cylinder 2,500-w, air-cooled units to 6-cylinder 60,000-w, water-cooled plants. Important information concerning parallel operation, automatic controls, optional equipment, and choice of models is included.—**D. W. Onan & Sons, Inc.**, 6760 Royalston Ave., Minneapolis 15, Minn.

#### PNEUMATIC-TIRED ROLLER

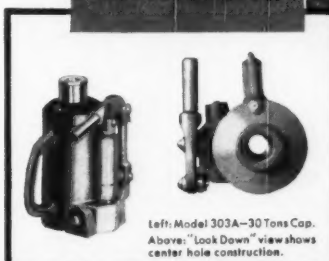
—Compaction data relative to the use of pneumatic-tired rollers are contained in a 4-p. folder which lists degree of compaction obtained in five passes when using rollers with weights of 12, 25, 35, and 50 tons. Folder RE-68 also contains a comparison chart listing degree of compaction obtained with pneumatic-tired and sheepfoot rollers. Specifications listed for the Bros Model 435 (35-ton capacity) and the Model 450 (50-ton capacity) pneumatic-tired rollers.—**Wm. Bros Boiler & Mfg. Co.**, 1037 Tenth Ave., S. E., Minneapolis 14, Minn.

# New ways to **SAVE**

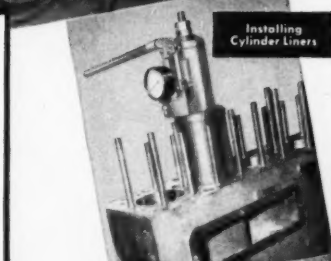
on **PULLING**  
on **PUSHING**  
on **JACKING**



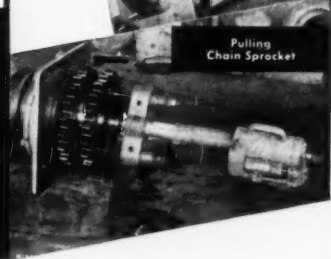
Pulling Wheels



Left: Model 303A—30 Tons Cap. Above: "Look Down" view shows center hole construction.



Installing Cylinder Liners



Pulling Chain Sprocket

## SIMPLEX-JENNY CENTER HOLE HYDRAULIC PULLER

Here's the modern tool for easily and quickly pulling or pushing wheels, gears, cylinder liners, valves, bushings and similar tough jobs. The versatile Simplex-Jenny, with its exclusive center-hole principle, brings direct-line hydraulic power into play; eliminates the torque action of old-fashioned screw type pullers. You save time and money doing scores of pulling and pushing jobs easily and safely in minutes (yes minutes!) instead of hours. Simplex-Jenny is portable and compact; five models with 30 to 100 ton capacities.

Get proof of savings with a free demonstration in your plant; or write for new bulletin: Hydraulic 48.

#### SIMPLEX HYDRAULIC JACKS — 3 TO 100 TON CAPACITIES



Model 3HJ  
3 Tons

Model 5HJ  
5 Tons

Model 8HJ  
8 Tons

Model 12HJ  
12 Tons

Model 20HJ  
20 Tons

Model 30HJ  
30 Tons

Model 50HJ  
50 Tons

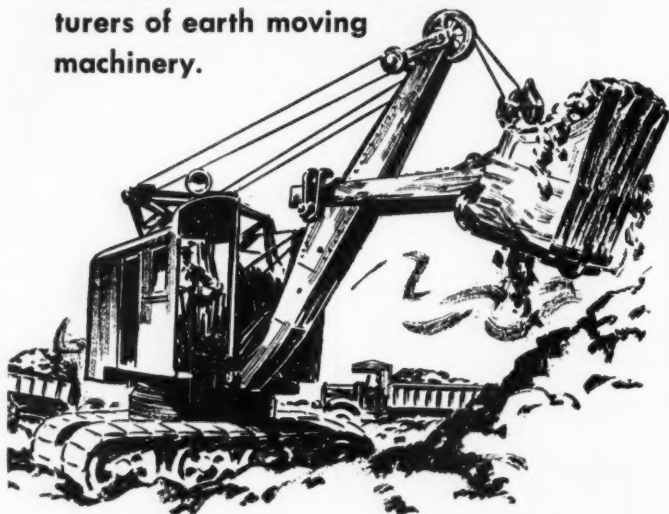
Model 100HJ  
100 Tons

**Simplex**  
LEVER - SCREW - HYDRAULIC  
**Jacks**

**TEMPLETON, KENLY & CO.**  
1008 South Central Ave., Chicago 44, Ill.

## **EASY TO WEAR-IN!**

**J-M INDUSTRIAL FRICTION MATERIALS** wear well from the start... are specified as original equipment by most manufacturers of earth moving machinery.



## **HARD TO WEAR-OUT!**

**J-M INDUSTRIAL FRICTION MATERIALS** wear slowly and evenly... are preferred by operators who keep maintenance costs low.

• J-M says "stop" and "go" to more tonnage than any other friction materials.

Replace with J-M Industrial Friction Materials and get better braking performance always. You're sure of long service, high braking efficiency and economical operation. Exceptionally durable, mechanically strong, J-M Friction Materials withstand faster speeds, heavier loads, harder shocks and higher temperatures. See your J-M Friction Material distributor or write Johns-Manville, Box 290, New York 16, N. Y.

**Johns-Manville**  
**INDUSTRIAL FRICTION MATERIALS**  
No. 1 With Leading Manufacturers



**ROLLING SCAFFOLDS** — How to place workers at job level, safely, is the subject of a new 4-p. bulletin describing the Trouble-Saver sectional rolling scaffolds. Bulletin PSS-14 describes and illustrates a variety of arrangements of prefabricated steel sections; shows typical installations with methods for assembling units to various space, height, and shape requirements; and describes the erection advantages and safety features of these scaffolds.—**Patent Scaffolding Co., 3821 Twelfth St., Long Island City 1, N. Y.**

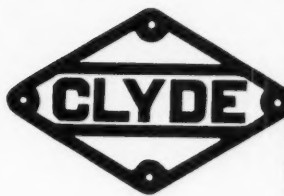
**CONTROLLED - PROCESSING ROAD MACHINES**—Illustrated brochure describes the self-propelled Pulvi-Mixer and the self-propelled Trav-L-Plant. Each machine is fully described by text accompanied by more than 19 illustrations. In addition to complete specifications, the catalog lists several features including heavy spill-over ahead of rotor to produce repeated re-mixing, finished mix is easily watched, all controls within easy reach of operator, clear operator's view, and easy maneuverability. — **Seaman Motors, Inc., 305 N. 25th St., Dept. II, Milwaukee, Wis.**

**BITUMINOUS - SURFACE SEALING**—Folder contains several answers to the question: Should a bituminous pavement be sealed? It discusses reasons for sealing blacktops; the use of Meco surface seal; action of the sealer; how it is applied; and similar informative data. The folder illustrates and describes several typical applications of Meco, and lists results and advantages gained by its use.—**Maintenance Engineering Co., 16 W. Johnson St., Philadelphia 44, Pa.**

**BRICKLAYING MACHINE**—Method of using newly invented bricklaying machine is described photographically in new folder. The Brick-Lay-R is more properly defined as a jig or metal guide to assist in laying and plumbing brick, and to assist in holding bricks in place while mortar is applied around them. Catalog shows how the unit is constructed, as well as how it is used on the job.—**Hodgson-Sommers, Inc., Montgomery, Ala.**

**IRON - ARMORED CONCRETE FLOOR**—Illustrated booklet (36 pp.) emphasizes nine features of the Masterplate iron-armored concrete floor surface. Job pictures show several typical installations. Detailed directions are given for laying Masterplate floors as new construction or for resurfacing old floors.—**The Master Builders Co., 7016 Euclid Ave., Cleveland, Ohio.**





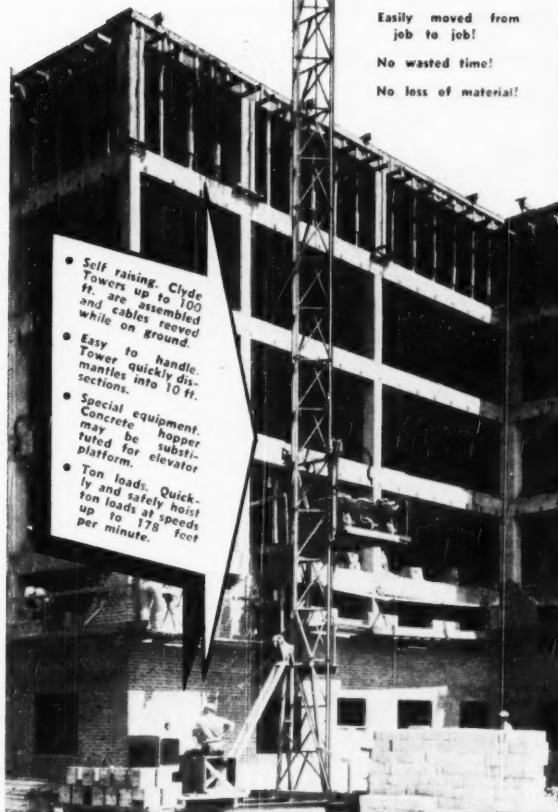
# Portable\* BUILDERS TOWERS

*many*  
**SAVES<sup>^</sup> COSTLY MAN-HOURS**

Easily moved from  
job to job!

No wasted time!

No loss of material!



• Self raising. Clyde Towers up to 100 ft. are assembled and cables reeved while on ground.

• Easy to handle. Tower quickly disassembles into 10 ft. sections.

• Special equipment. Concrete hopper may be substituted for elevator platform.

• Ton loads. Quick-ly and safely hoist ton loads at speeds up to 175 feet per minute.

## Cut Costs!

### Speed Materials Handling!

\*Clyde Portable Builders Towers offer many money-saving and time-saving advantages. Time saved in the erection and dismantling, as compared to other type elevators, effects large savings **measurable in cold cash!** Clyde Towers are built for long life, dependable performance, and eliminate maintenance and replacement costs of timber tower. But more than that, Clyde Portable Builders Tower are **safety engineered** to minimize construction job hazards. No acrobats or dare-devils are needed to erect a Clyde... it's assembled on the ground and raised into position with its own hoist!

For safety, for convenience, for large savings measurable in cold cash, get a Clyde! **You can expect, AND GET,** more when you buy a Clyde portable builders tower.

### Check these Clyde Features

- ✓ Safety brake automatically locks load in case of cable failure.
- ✓ A 2,000 lb. capacity tower derrick available as extra equipment.
- ✓ May be transported on trailer wheels or loaded on a truck.

*For Complete Facts  
write for Bulletin A-11*



Tower hoist quickly and easily raises tower into position. No outside crane is needed. Clyde Portable Builders Towers are fast, safe, convenient to erect.



Tower is quickly and easily assembled, and cable reeved while tower is on ground. Only two men are required to handle and erect complete.



Tower is easily and quickly lowered and dismantled for transport. May be loaded on truck or towed on trailer wheels which attach to tower base.



## CLYDE IRON WORKS, Inc.

DULUTH 1, MINNESOTA

Hoists • Derricks • Whirlers • Builders Towers • Car Pullers • Hand-Cranes • Rollers •

A SUBSIDIARY OF  
**Barium**  
STEEL CORPORATION  
*See through to the bottom*



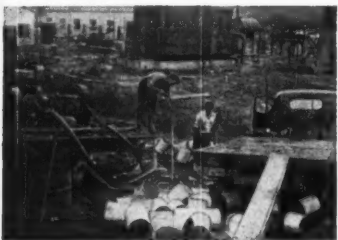
Water is precious and valuable for many services and leakage through crevices in rock berm permitted the water to waste out of this dam on the property of a large Natural Gas Company.



Everything is ready to pump 3600 lbs. WATERPLUG into the rock berm, to seal the crevices. Five minutes was required to pump material into place.



The pressure gauges are watched carefully to control the pumping operation and prevent clogging and setting in the pipes.



The pumps, hose and all equipment are washed and cleaned quickly to prevent hardening of WATER-PLUG in the equipment.

## Do you have masonry problem?

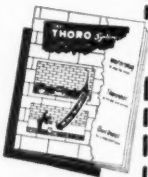
They can be corrected with THORO System Products



WATERPLUG	STOPS LEAKS
THOROSEAL	SEALS SURFACE
QUICKSEAL	BEAUTIFUL FINISH

Over 65,000 Contractors and Builders use these products as standard for protection of masonry, above and below grade.

Get our new 20-page brochure, with designer's guide. Pictorially described, in detail . . . "How to do it".



# Standard Dry Wall Products

BOX X. NEW EAGLE, PENNA.

**ELECTRIC-POWERED EXCAVATORS**—Three bulletins describe the Marion Types 151-M, 4161, and 111-M Ward-Leonard electric machines. Bulletin 393-A describes the 6½-yd 151-M which can be used as either a shovel or dragline. Bulletin 394-A describes the 5-yd 4161 which is also convertible to shovel or dragline service. Bulletin 399 describes the 111-M which is convertible to service as a shovel, dragline, clamshell crane, or coal loader. The 111-M carries a 3½-yd dipper as standard equipment.—Marion Power Shovel Co., Marion, Ohio.

**TRACTOR SERVICE MANUAL** — Instructions for proper operation, maintenance, and repair of Allis-Chalmers HD-5 crawler tractors are contained in a 220-p. service manual. Divided into 23 sections, Sections 1 through 19 feature a general description of the tractor; Section 22 is devoted to the application and use of special tools required in making repairs; Sections 21 and 22 are devoted to general maintenance instructions and fits and tolerances; and Section 23 contains troubleshooting information and indicates tests which can be made to help determine causes of mechanical difficulties. Cost of the manual is \$3.00 — Allis-Chalmers Mfg. Co., Tractor Division Service Department, Box 512, Milwaukee 1, Wis.

**UNDERGROUND PIPE INSULATION**—Revised version of brochure describes Z-Crete underground-pipe insulation. Method of insulating underground hot lines with a continuous system of lightweight insulating concrete is fully described and illustrated in the brochure.—Zonolite Co., Z-Crete Division, 135 S. LaSalle St., Chicago 3, Ill.

**DITCHING EQUIPMENT** — Deep-sewer and water-ditching equipment is graphically portrayed in this catalog. It explains fully the features and application of Buckeye Models 120 and 160 service ditchers in a wide variety of applications.—Gar Wood Industries, Inc., Findlay Division, Findlay, Ohio.

**WELTERWEIGHT MOTOR GRADER** — Low-cost all-purpose motor grader is featured in a new 8-p. bulletin. The bulletin contains illustrations showing the Trojan welterweight patrol in use on ditching, blading, fine grading, loading, dozing, snow plowing, scarifying, and maintenance operations. A double-page photograph of the Trojan is accompanied by a list of ten advantages claimed for it. Catalog P-700 contains illustrations of accessories available for use with the Trojan, and a complete list of specifications.—Contractors Machinery Co., Inc., Clinton St., Batavia, N. Y.

**Avoid costly errors  
with this . . .**

## NEW UNIVERSAL Level Transit



Price \$165.00  
complete with tripod



Now David White offers you, at the lowest price anywhere, the finest of Universal Level Transits with  $4\frac{1}{2}$ " protected arc, internal focusing and coated optics.

Don't wait if you're in the market for a new all-round practical builder's instrument — see the improved new David White Model 3000 Universal Level Transit now.

You'll find this instrument properly used will be your best insurance against costly layout and building errors. The new  $4\frac{1}{2}$ " protected arc means easier, more accurate readings, less likelihood of instrument damage through accident. Internal focusing assures you of dust and dirt-free inside lens surfaces, better protection for optical parts and mechanism. Coated optics mean clearer, distortion-free images, sharper definition, positive readings at greater distances and under adverse conditions. Instrument spindle supported on ball bearings for perfect horizontal adjustments.

Ask your nearest dealer to give you complete information on this and other fine engineering instruments. Or write direct to David White Co., 343 W. Court St., Milwaukee, Wis.

We offer complete, prompt repair service on all makes of instruments — levels, transits, theodolites, etc.



**UNITAIR COMPRESSORS** — Sixteen-page catalog is profusely illustrated with pictures of all sizes of the Joy WL-80 compressor, as well as sectionalized drawings to point out its various features. Selector chart simplifies choosing a compressor to meet individual requirements. The Unitair is available in eleven sizes, 15 to 125 hp, with piston displacements from 81 to 640 cfm at 125-lb maximum pressure. They can be provided with gasoline, diesel, or electric drive.—Joy Mfg. Co., Henry W. Oliver Bldg., Pittsburgh 22, Pa.

**HEAVY-DUTY SCALPER** — Four-page bulletin describes and illustrates a vibrating machine designed to scalp-off lumps of solid rock as large as 5x5x5 ft and weighing 1½ tons, or more. The scalper is said to absorb the weight of this impact so completely that vibration is not felt in its base or imparted to supporting structures.—Robins Conveyors Division, Hewitt-Robins, Inc., 270 Passaic Ave., Passaic, N. J.

**PROXIMITY WARNING DEVICE** — Electric device sounds a warning when crane or shovel booms swing into the vicinity of power lines or other danger areas. Complete details on the operation of the Electro-Alarm equipment are contained in a small folder; also detailed information on the master control unit, the proximity detector, the warning horn, and the trouble-check flasher. The device will fit any size rig.—Electro-Alarm Sales Co., 320 Woodmen of the World Bldg., Omaha 2, Neb.

**TRACTOR EQUIPMENT** — Complete line of equipment for International tractors is described in a new Isaacson bulletin. The Isaacson bulletin lists angle- and straight-blade hydraulic Trac-Dozers; angle and straight-blade Kable Trac-Dozers; Kable power units; cable-operated Karry Skrapers in five models; single and double-drum Winchoists; Karry Arch and Karry-Kart for high-speed logging; the Klearing Blade equipped with long teeth to speed clearing, combing, and leveling operations; Kable or hydraulic super rooters; the inside Trac-Dozer; and Fas-Tamp rollers.—Isaacson Iron Works, 2900 E. Marginal Way, Seattle, Wash.

**LONG-SPAN JOISTS** — All-welded steel joists with spans varying from 25 to 72 ft and with load capacities of 200 to 700-lb per lin ft are described in a 12-p. catalog. Data listed in Catalog S-100 cover special features, table of uniform loads, basic joist designs, typical details, special designs, and specifications.—Dominion Bridge Co., Ltd., P. O. Box 280, Montreal, Quebec, Canada.

**Now!** You Get  
**the BIG SAVINGS**  
from Fast, Economical  
Air Placement of Concrete . . .



with the  
**New**  
**BONDACOR!**

Own Your Own  
**BONDACOR PROCESS EQUIPMENT!**

Hundreds of large and small contractors are discovering that one job can pay for a BONDACOR . . . and then the savings and profits from air-placed concrete are all yours! BONDACOR assures you accurate high speed application, better hydration of cement, easy operation and maintenance, best possible "bonding action," plus many other outstanding advantages.

**Saves Time, Labor, Money . . .  
Increases Profits on**

- New building construction
- Repair of disintegrated concrete, brick, stone, other masonry.
- Fabrication of pre-cast concrete wall and roof sections
- Water-tight application of concrete to concrete and cinder blocks
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- Lining of water reservoirs, basins, tunnels, spillways, tanks
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- Sidewalk, street and highway repair
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**Easily Operated by 3-Man Crew . . .**



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by using a mixer elevator. The BONDACOR Process and its many uses have been carefully developed by years of scientific research and on-the-job tests, to assure you better work at a saving in time, labor and money.

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Firm .....

**ENGINES FOR PUMPS** — Features of diesel and electric sets for power-pumping equipment are listed in a 12-p. catalog. These features are: Independence of operation, long life, economy, portability, flexibility, and dealer service. Form 12484 contains job data and photographs specifically designed to illustrate each of these features.—**Caterpillar Tractor Co., Peoria 8, Ill.**

**SOLVENT-TYPE ASPHALT COATING**—Three new data sheets describe various types of asphalt coatings. Bulletin I-C 221 describes Flintkote

Trowel Mastic, a solvent-type asphalt coating containing asbestos and mineral stabilizers used for water resistance on the interior of exterior masonry walls. Bulletin I-C 222 describes Flintkote Semi-Mastic, a similar material for brush applications. Bulletin I-C 229 describes Flintkote Plastic Cement No. 232, a heavy-consistency asphalt cement for repairing roofs, leaks, and cracks in masonry, for maximum resistance to water and weather. It meets Federal Specification SS-C-153 Type 1.—**The Flintkote Co., Industrial Products Division, 30 Rockefeller Plaza, New York 20, N. Y.**

**VIBRATION DUE TO BLASTING**—Ground vibration due to blasting and its effect upon structures is discussed in a report made available in pamphlet form. It discusses all phases of the subject, including personal reactions, development of instruments necessary to obtain the data, and other factors entering into a discussion of this type. The pamphlet is well illustrated with charts and tables of engineering interest.—**Liberty Mutual Insurance Co., 175 Berkeley St., Boston 17, Mass.**

**CRUSHING AND SCREENING PLANTS** — Engineering brochure contains many drawings and suggestions for arranging equipment to make up complete portable and semi-portable crushing and screening plants. It contains flow sheets and tables showing arrangements, horsepower requirements, and conveyor and screen and crusher specifications for various hourly production capacities.—**Nordberg Mfg. Co., Chicago & Oklahoma Aves., Milwaukee 7, Wis.**

**ADJUSTMENT OF TRANSITS; LEVELS**—Two pocket-size booklets contain information to aid in the adjusting of surveying transits and wye, dumpy, and precision tilting levels. Booklet A lists data on adjustments of transits, suggestions on care and maintenance, and causes of mechanical and instrumental errors and their correction. Booklet B contains similar information for levels.—**W. & L. E. Gurley, Troy, N. Y.**

**AERIAL SURVEYS** — Engineering services offered by a firm of photogrammetric engineers are described in a new catalog entitled "Air Speeds to Your Map Needs". The booklet explains what photogrammetry is, describes the Ammann organization, shows typical examples of aerial surveys and maps, explains the making of topographic maps and precise aerial mosaics, and lists other informative data.—**Jack Ammann, 829 N. St. Mary's St., San Antonio 2, Tex.**

**AUTOMOTIVE TIMING CHAINS**—Construction and use of automotive-timing chains are illustrated and described in this 12-pager. Bulletin 49-5 contains a comprehensive description of timing problems and their solution, including an explanation of the need for replacing worn timing chains promptly. Design features of the Duckworth timing chains are described and interpreted in terms of advantages to the user.—**Chain Belt Co., Baldwin Duckworth Division, 1664 W. Bruce St., Milwaukee 4, Wis.**

## STANDARD STEEL PRESSURE DISTRIBUTOR

FOR  
PRIME COAT  
ROAD MIX

FOR  
SEAL COAT  
PATCH  
WORK

FULL CIRCULATING SPRAY BAR  
GIVES UNIFORM SPREAD OF MATERIAL  
THROUGHOUT LENGTH OF BAR ...

SIMPLIFIED PIPING PERMITS  
FAST LOADING AND LAYING ...

✓ 25% More Asphalt shot per day! Faster loading! No delays Starting! Instant cleaning at end of run! These are facts known to every operator of **Standard Steel Pressure Distributors**! Why? Because of the simplified piping in this equipment! The full circulating spray bar contains submerged valves which are quickly heated and remain uniformly hot at each point of pouring. The throw of a single lever opens and closes all valves instantly. Every inch of the spray bar delivers precisely the same material output—lightest or heaviest bituminous material. And there are 12 other special features that make this equipment outstanding in performance. Write for catalog 424 today for complete details.

### OTHER PRODUCTS

Maintenance Distributors, Tar Kettles, Patch Rollers, Supply Tanks, Tool Heaters, Asphalt Tools, Street Flushers, Construction Brooms.



PD 3

**Standard Steel Works, NORTH KANSAS CITY, MO.**





Forms in place for one of eight reinforced-concrete bridges. Project used 105 tons of Bethlehem Reinforcing Bars.

Staking Bethlehem Dowel Unit in place. Note near-perfect vertical and horizontal alignment of dowels.

## Cutting a New Path for U.S.230

To avoid congested areas, U. S. Route 230, heavily-traveled highway between Lancaster, Pa., and Harrisburg, was moved eastward recently in the vicinity of Mt. Joy. The construction photographs shown here were taken on a 25,000-ft section of the new four-lane road, built by John H. Swanger, Inc., Lancaster, Pa. Bridge reinforcing, dowel units, hook bolt dowels and keyway forms were supplied by Bethlehem.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

*On the Pacific Coast Bethlehem products are sold by  
Bethlehem Pacific Coast Steel Corporation*

*Export Distributor: Bethlehem Steel Export Corporation*

## STEEL FOR HIGHWAYS

Dowel Units • Reinforcing Bars • Bar Mats • Guard Rail  
Guard Rail Posts • Wire Rope and Strand • Pipe  
Hollow Drill Steel • Spikes • Bolts and Nuts  
Timber Bridge Hardware • Tie-Rods  
Sheet- and H-Piling • Fabricated Structural Steel



Top, right: Bethlehem Hook Bolt Dowels fitted into sleeve nuts in keyway. After forms are stripped, other hook bolts engage opposite ends of nuts, tying slabs together. Bottom: Crane, with Bethlehem Wire Rope, at work in batching plant.



Left to right: D. Kehler and F. H. Grittinger, Pa. Dept. of Highways; J. Pframmer, C. J. Wolf, and J. Felman, of John H. Swanger, Inc.



*Three Reasons Why  
Construction Men  
Like the Name  
**GOODALL**  
on Their*

## **BOOTS** and **CLOTHING**

- 1.** *Quality is plainly evident in every detail . . . the materials; the way they're made; their fine appearance.*
- 2.** *Comfort makes them "easy to wear," no matter how long they're worn, or how active the wearer must be.*
- 3.** *Long Wear assures real economy . . . a lot of extra time between replacements, regardless of rough use.*

### **"TOE-SAVER" BOOTS**



Famous for their durability and comfort, and the positive protection afforded by the white toe-cap. Grid-tread soles assure long wear and prevent slipping on wet surfaces. Made in short, three-quarter and full-hip lengths.

The Goodall Line includes other types and styles of boots, booties, work shoes and over-shoes . . . all made of quality materials, to quality specifications.



### **COATS, JACKETS OVERALLS, HATS**

A variety of styles, rubber and oiled, for economical wet-work and wet-weather protection, above ground or below. Linemen's coats—no metal parts. Soft, "squam" and safety hats. Cape caps. Work gloves for all purposes.

**Contact Our Nearest Branch for Details and Prices.**



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**FORK-LIFT TRUCKS; TOWING TRACTORS**—General catalog covers the Clark line of fork-lift trucks and towing tractors. All pertinent facts necessary to a preliminary consideration of materials-handling machines are easily and quickly available. Data is arranged to make comparisons between various models as simple as possible.—**Clark Equipment Co., Industrial Truck Division, Battle Creek, Mich.**

**HARD-SURFACING MATERIALS**—Rods and electrodes for gas and arc-welding hard-surfacing materials are listed in Catalog B-1. Feature of the catalog is a listing of nearly 200 recommended applications cataloged by industries. Specific types of welding material to be employed are listed with each application.—**Rankin Mfg. Co., 3072 W. Pico Blvd., Los Angeles 6, Calif.**

**SPECIAL ALLOY STEEL**—Brochure (36 pp.) lists case histories of applications of Jalloxy heat-treated steel in earth-moving, construction, and other industries. Jalloxy is recommended for any application where abrasion and impact resistance are major factors in service life (shovels, drag buckets, dipper sticks, grader blades, dump-truck bottom-liner plates, sand and gravel chutes). Complete technical data, with tables, provide information on physical properties relating to surface hardness, yield strength, and others.—**Jones & Laughlin Steel Corp., 428 Jones & Laughlin Bldg., Pittsburgh 19, Pa.**

**HORIZONTAL, VERTICAL DRILLS**—Comprehensive catalog (25 pp.) presents various combinations of post and machine-mounted drills. Designed for quick reference, the catalog features selector tables cross-indexed to facilitate making up matched-set assemblies for horizontal and vertical drilling under specific conditions. Clear, precise drawings of the various types and sizes of tools are accompanied by specification data arranged to present clearly the basic information needed.—**Central Mine Equipment Co., 6200 N. Broadway, St. Louis 15, Mo.**

**WATER AND OIL METERS**—Pocket-size reference contains information on a line of meters and accessories. Types of meters listed include both disk and turbine models. Other equipment listed includes portable test meters, yokes, compounding valves, dial extensions, strainers, and visible-flow indicators. The final part of the booklet is devoted to engineering data and conversion charts relating to the use of meters and liquid flow.—**Badger Meter Mfg. Co., 2357 N. 30th St., Milwaukee 10, Wis.**

## SALES AND PARTS SERVICE

A department devoted to manufacturers' activities involving the sale and distribution of products and parts, and service facilities. Designed to give the reader information that will enable him more readily to purchase products and parts and to service his equipment.

### Distributor Appointments

**Dravo Corp.**—Geo. B. Limbert & Co., Inc., 208 S. LaSalle St., Chicago, Ill., for the sale and installation of fabricated piping in Illinois, Wisconsin, Minnesota, Iowa, northwest Indiana, western Michigan, and St. Louis county, Missouri.

**Rosco Mfg. Co.**—Kennedy-Cochran Co., Bellwood, Ill., (Branch at Rockford, Ill.) for all counties north of and including Pike, Scott, Morgan, Sangamon, Christian, Macon, Moultrie, Douglas, and Edgar in Illinois, and Lake, LaPorte, Porter, and St. Joseph in Indiana.

**Stow Mfg. Co.**—Stanley D. Bowles Co., 3406 Main St., Dallas 1, Tex., (Branches in Oklahoma City, Houston, and New Orleans) the Stow line of truck pump shafts, vibrators, and flexible-shaft machines in New Mexico, Texas, Oklahoma, Arkansas, and Louisiana.

**Morse Chain Co.**—J. A. Shomer Co., 11201 Berea Road, Cleveland 2, Ohio, for the Cleveland area.

**Durisol, Inc.**—Five new representatives: J. Henry Smurl, 304 S. Main Ave., Albany, for east-central New York to the Canadian border; The Nichols Co., Michigan Bldg., Detroit, for eastern Michigan and northeast Ohio; Fred R. Evans, 312 Madison Ave., Scranton, for northeastern Pennsylvania; John D. Slaughter, 2301 N. Charles St., Baltimore, for the state of Maryland; and Favrot & Pierson, 801 S. Broad St., New Orleans, for the state of Louisiana.

**W. A. Riddell Corp.**—Southeastern Sales Co., Harlan, Ky., for the entire line of Warco motor graders and Hercules road rollers throughout Kentucky; and Graham Road Equipment Co., Inc., 3325 Brighton Blvd., Denver, for the state of Colorado.

### New Sales Outlets

(Agencies, Branches)

**Allis-Chalmers**—Status of Grand Rapids, Mich., office is changed from branch to district. G. C. Culver continues as district manager. E. J. Kelly is transferred from Kansas City to Youngstown district office; (Continued on page 152)

## A READY HAND WITH 500 POUNDS OF PULL



### MIGHTY-MIDGET PULLER

Here's a compact, handy tool that reduces manhandling of heavy materials, helps get machines back on the job quickly. The Coffing Mighty-Midget Puller is ready to go to work—in the shop or out—at a moment's notice. It hooks anywhere...needs just 8½-in. head room, weighs only 6½ lb., works vertically or horizontally. With full 500-lb. capacity, it easily lifts and shifts heavy plates, castings, etc., holds them positively, safely in any position. Pulls engine blocks, installs heavy parts on construction equipment, does many other lifting, stretching, pulling jobs. Factory tested at 50% overload. Two-way handle is either lever or high-speed crank.

Make the Mighty-Midget Puller a standard tool in your shop. See how it saves time and muscle power on scores of jobs. Write for the name of your nearest Coffing dealer and for illustrated Bulletin No. D3MP.



Low Price!  
—only \$19.75

### COFFING HOIST COMPANY, Danville, Illinois

Quick-Lift Electric Hoists • Hoist-Alls • Safety-Pull Ratchet Lever Hoists • Spur-Geared Hoists • Differential Chain Hoists • Load Binders • I-Beam Trolleys

Ready To Rush Construction Jobs

# Reliance

Ready to ship to your job  
NOW — RELIANCE Construction Equipment offers you important improvements in complete Crushing, Screening, and Washing Plants. Look into the smooth operation and rugged construction of the RELIANCE LINE.



### RELIANCE PRODUCTS

Rock Crushers, Bucket Elevators, Revolving Screens, Storage Bins, Pulverizers, Chip Spreaders, Heating Kettles, Bin Gates, Feeders, Belt Conveyors, Grizzlies, Air Separators, Sand & Gravel Spreaders, Wash Boxes.

Write for the latest  
RELIANCE Bulletins.

Quality products still available at moderate cost.

## UNIVERSAL ROAD MACHINERY CO.

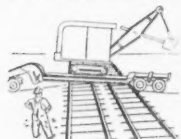
Kingston, N. Y., U. S. A.

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## The **ROGERS** 4-FEATURE POWER-LIFT DEMOUNTABLE GOOSENECK



STOOPS TO  
CLEAR LOW  
OVERHEAD  
OBSTRUCTIONS



RAISES ITS  
DECK TO  
CLEAR HIGH  
BANKED  
CROSSINGS

Patents Pending  
**EMBODYING A  
NEW AND VALUABLE  
FEATURE  
IN TRAILER  
SERVICE**



It embodies the kind of versatility that makes every haul easier, faster, more profitable.

Loading, at a lower angle, is faster. Larger tires carry heavier loads legally. Unloading, reloading, detouring are avoided through quick adjustment of the deck height to different conditions encountered.

It's equally as rugged as the standard Rogers Gooseneck regardless of its detachable feature. And it's available on most Rogers Trailers and adaptable to many trailers of other makes.

Bring your equipment up-to-date and be in a position to handle operations more efficiently and more profitably.

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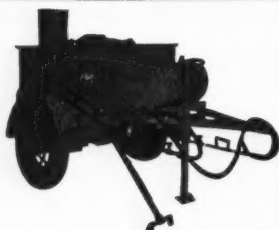
# ROGERS TRAILERS

EXPERIENCE builds 'em



PERFORMANCE sells 'em

ROGERS BROTHERS CORPORATION, 220 Orchard St., ALBION, PA.



### HEATING KETTLES FOR ASPHALT AND TAR

Fire Proof — Oil Burning  
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#### CONCRETE VIBRATORS

Gasoline Engine and  
Electric Motor Driven Models

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For Industrial Tractors

#### AGGREGATE DRYERS

for Stone and Sand

#### ASPHALT PLANTS

Portable — Stationary

Write for Circulars

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(Continued from page 151)

and T. E. Marchant, from Youngstown to Pittsburgh district office.

**Kinney Mfg. Co.**—Opens a new Los Angeles office at 3924 W. Slauson Ave., in a newly constructed building. Roy A. Woltman is in charge.

### Sales Personnel

**Allied Steel Products, Inc.**—Frank L. Shoemaker, 1016 First Ave., S., Seattle 4, for Washington and Oregon; William Barron, 5020 California St., San Francisco, for northern California; Don Page, 406 Dunlap St., Lansing 10, Mich., for Ohio and Michigan; and George D. Heath Co., 518 E. 16th St., Kansas City 8, Mo., for Nebraska, Kansas, Iowa, Missouri, and Illinois south of Springfield. L. R. Edminster, Portland, Ore., is advanced to division sales manager on the Pacific coast; and Wade V. Kern is appointed division sales manager east of the Mississippi River.

**Allis-Chalmers**—General machinery district office changes are: A. B. Frost, manager of the Boston office; W. F. Taylor, New England regional manager; J. E. Smit, manager of the New Haven office; G. G. Fintak to Boston office to assist sales representatives; G. H. Hoffman, manager of the Birmingham district office; H. C. Sells, manager of the branch office at Chattanooga; and I. K. Cox, will handle products of the crushing and cement division for the Empire (New York) region.

**Contractors Machinery Co.**—Hugh B. Winfrey, southeastern representative for Trojan road tools.

**Hose Accessories Co.**—Charles G. Keshen, 18 Boulevard Terrace, Allston 34, Mass., for Le-Hi hose couplings in Maine, Massachusetts, Vermont, Rhode Island, and Connecticut.

**Industrial Brownhoist Corp.**—H. C. Atwater, district sales manager of the New York City office.

**The Jaeger Machine Co.**—H. A. (Bus) Kindler, district manager for Illinois, Iowa, Missouri, Nebraska, and Kansas. Dale D. Murray takes his place as manager of the Air Compressor division.

**Mack Trucks, Inc.**—J. M. Donahue, manager of the Atlantic division covering Pennsylvania, Delaware, Maryland, and the District of Columbia.

**Magnus Chemical Co., Inc.**—Sidney G. Harris joins the company as a sales engineer.

**Aluminum Industries, Inc.**—Lyle B. Paris, sales manager of the paint & varnish division.



**John A. Roebling's Sons Co.**—E. A. Trask, manager of the company's Chicago corporation; G. C. Bukowsky succeeds him as head of the San Francisco office.

**United States Plywood Corp.**—M. W. Pollack is manager of the Northeastern division; C. S. Creigh, the Middle Atlantic; E. A. Edwards, North Central; W. H. Hunt, Midwestern; and F. B. Smales, Western.

**Westinghouse Electric Corp.**—C. Swan Weber is appointed manager of the eastern district with headquarters in New York City.

### New Plants or Offices

**National Homes Corp.**—New plant at Horseheads (near Elmira) N. Y., provides an additional 175,000 sq ft of manufacturing and shipping space.

**Perlite Mfg. Corp.**—Tripled production is aim of \$100,000 modernization program for its plant at Carnegie, Pa.

**Joseph T. Ryerson & Son, Inc.**—Large steel service plant and office building in Cincinnati is estimated at a cost of well over \$1 million. Plant is scheduled for completion by Fall.

**Snap-on Tools Corp.**—Seventh Canadian branch of Snap-on Tools of Canada, Ltd., has been opened at Regina, Saskatchewan. Plans are being drawn up for a new general office and factory to cover approximately 20,000 sq ft of floor space.

**Universal Concrete Pipe Co.**—New concrete-pipe plant has been opened at Tampa, Fla. Other plants are in Georgia, Alabama, Tennessee, Kentucky, New York, Pennsylvania, Ohio, and West Virginia.

### Production

**Allegheny Ludlum Steel Corp.**—Merle J. Graham is manager of production. Frank G. Benford succeeds him as plant manager at West Leechburg, Pa.

**Malsbary Mfg. Co.**—A. E. McIntyre has joined the company as general manager in charge of all functions of the business.

**Marion Power Shovel Co.**—Merle V. Lashey is upped to position of assistant chief engineer in charge of large shovel design. He succeeds the late Glenn B. Heffelfinger.

**National Gypsum Co.**—E. Bradford Hollingsworth is production manager in charge of six plants; Paul H. Fretthold is production control manager.

(Continued on page 154)

**PREVENT  
COSTLY**

*Cave-Ins*

WITH

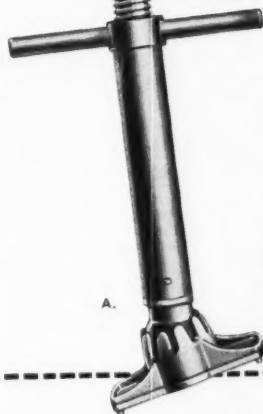
DUFF-NORTON

**TRENCH  
Braces**

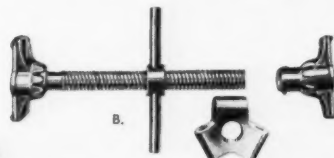


### Make Trenches Safe for Workmen

Unexcelled for safe and economical bracing of all trench and excavation jobs... Duff-Norton Trench Braces are of strong construction... easy to install, easy to maintain when not in use. Write today for full information and proposal on your requirements.



A. This type is supplied complete with pipe (1½" or 2") in lengths from 16" to 60" to suit your needs.



B. Steel fittings only are supplied without pipe if desired. Used with 1½" and 2" pipe.



C. Steel timber brace fittings are furnished without timbers for use with 4" x 4"—6" x 6" and 8" x 8" timbers.

See your local distributor or write for Catalog 203-B



**THE DUFF-NORTON MANUFACTURING CO.**

MAIN PLANT and GENERAL OFFICES, PITTSBURGH 30, PA.—CANADIAN PLANT, TORONTO 6, ONT.

*"The House that Jacks Built"*

(Continued from page 153)

**Owens-Illinois Glass Co.**—David Innes is named product development engineer; Curtis W. Howard is named general factories manager of the Kaylo Division.

**United States Rubber Co.**—Herbert G. Kieswetter is assistant general manager of the mechanical goods division.

**Findlay Division, Gar Wood Industries, Inc.**—Kenneth F. Ode is named division manager of the Findlay Division in charge of the Findlay, Ohio, plant (formerly The Buckeye

Traction Ditcher Co.); the Mattoon, Ill., plant; and the Springfield Mounting Station.

**Arch Rib Truss Corp.**—Has taken over personnel and principal assets of the Arch Rib Truss organization. Theodore C. (Ted) Combs is president; Calvin R. (Cal) Cameron is vice-president and incumbent general manager.

**National Safe-Line Clamp Co.**—Has taken over manufacturing and distribution of Safe-Line wire rope clamps. New firm is located at 11252 Nine Mile Road, Van Dyke, Mich. Walter Therssen is owner.

**Foundation Equipment Corp.**—New company handling rental and sales of construction equipment. Company was founded by M. H. Rothschild, formerly with the Complete Machinery & Equipment Co., Inc. New company is located at 37-35 Tenth St., Long Island City 1, N. Y.

**Concrete Sawing Equipment Inc.**—Formerly Hurstco, Inc., manufacturers of Concut, Jr., and Clean-Cut concrete-cutting machines announce withdrawal and resignation of Hurst Lewis and E. S. Lewis. Harold F. Pettee, Jr., is new president; John I. Bolen, vice-president; and Raymond P. Massey, secretary-treasurer. Offices are located at 200 Union National Bank Bldg., Pasadena 1, Calif.

**Herman Nelson Corp.**—Has merged with American Air Filter Co., which name the two companies will use. Nelson Corp. will be operated as the Herman Nelson Division. Headquarters and facilities remain at Moline.

## Miscellany

**The Jaeger Machine Co.**—John Monforte, export manager, is making a 5-month trip to the Near East and some of the western European countries.

**Mine Safety Appliances Co.**—Has established an International Division to coordinate activities of subsidiaries in Canada, South Africa, and Great Britain. C. M. Donahue is manager.

**North American Cement Corp.**—George B. Gillie is named as traffic manager; Perry W. Andreas, vice-president in charge of operations; and Frank B. Cummings, vice-president and controller.

**Portland Cement Association**—Carlos D. Bullock is structural engineer for the west central region, with headquarters at 1627 Dierks Bldg., Kansas City 6, Mo.

**Structural Clay Products Institute**—Robert B. Taylor, of Newark, Ohio, has taken over his new duties as research director for the Structural Clay Products Research Foundation.

**Texas Gas Transmission Corp.**—Emil J. Jandacek is named assistant chief engineer of the company's entire pipe-line system.

**Riverside Cement Co.**—Albert A. Goethals, is elected vice-president and treasurer; Lester C. Smull, vice-president and works manager; John C. Allen, vice-president in charge of sales, and Lawrence L. Conley, sales manager.

**Pennsylvania-Dixie Cement Corp.**—Fred L. Doolittle is elected vice-president and general sales manager.

# SAVE HOURS... SAVE DOLLARS

with  
**"TROUBLE SAVER"**  
Sectional  
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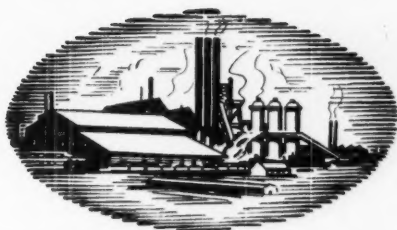


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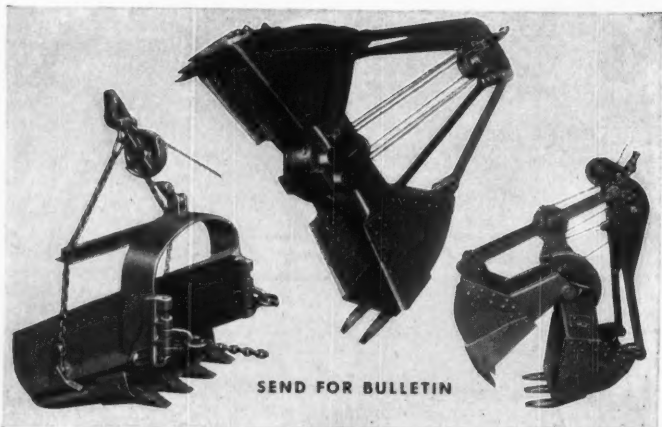
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To get on the selected and negotiable bidding list, interested construction firms should advise the various managers of operation, attention of division directors, with copies to be filed for reference with Construction-Engineering Branch, U. S. Atomic Energy Commission, Washington 25, D. C. The various district personnel is listed in the booklet.

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Steel headframe of the Mather B Shaft during construction. This project was directed by C. J. Stake, General Manager of Cleveland-Cliffs Iron Co. at Ishpeming, Mich., and J. S. Westwater, Superintendent of the Mather B Shaft at Negaunee, Mich.

## Mather B Shaft Sinking Speeded by Modern Mucking and Drilling Methods

The recently-completed Mather B Shaft at the Mather mine of Cleveland-Cliffs Iron Co., Negaunee, Mich., has attracted wide interest because of the unique "Hydro-Mucker", a hydraulically-operated clamshell bucket, which was developed by some imaginative engineering on the job to speed up mucking operations. Detachable bits tipped with tungsten carbide also received a large share of credit for the rapid progress. These bits, used on rods of Bethlehem Hollow Drill Steel, gnawed through the hard, blue jasper and other abrasive rock in record time.

Sunk vertically to a depth of approximately 3100 ft, this steel- and concrete-lined shaft measures approximately 15 by 20 ft and is divided into four compartments for handling ore, men and supply piping. It is a companion to the 2352-ft Mather A Shaft, completed early in 1943. Both facilitate the orderly development and mining of ore on this Marquette Iron Range property.

Following the removal of overburden and installation of equipment above ground, the shaft work really got under way on October 21, 1947. Speed being such a predominant factor in shaft-sinking operations, every resource was explored to attain the greatest possible efficiency. As the shaft was sunk deeper, the advance per month increased despite the longer travel time in hoisting operations. The average monthly advance of 137 ft during 1948 was exceeded during 1949 when a monthly average of 159 ft was attained during the first 7 months.

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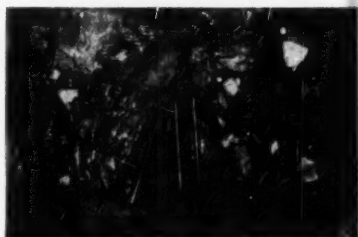


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View showing the "Hydro-mucker" cleaning up shaft bottom at depth of approximately 3000 ft. This bucket stepped up muck removal to 12 cu yd per hour, even when hoisting depths exceeded 2500 ft.



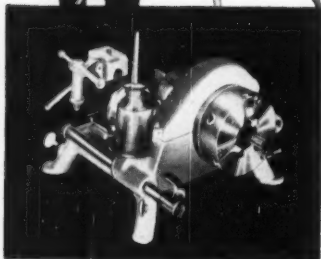
Mounted on a pneumatic column, this drifter drill was used to "cut out" on the tenth level, about 3012 ft below the collar of the vertical, 3100-ft shaft.

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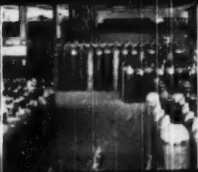
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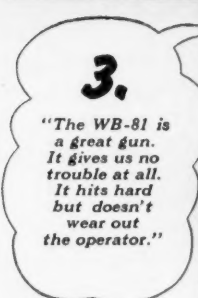
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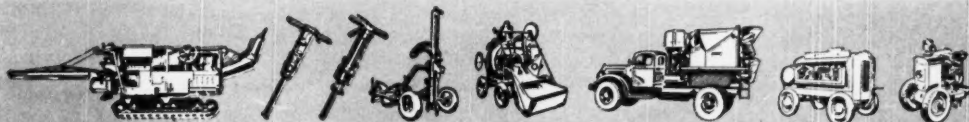
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